

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Gleanings in Bee Culture

VOL. XXXVII

SEPTEMBER 1, 1909

NO. 17



HELEN—See page 554.



PUBLISHED BY

THE A. I. ROOT COMPANY, MEDINA, OHIO, U. S. A.

FALCON QUEENS

WE HAVE in charge of our Queen Department Mr. Leslie Martin, who has had wide experience in the queen business, having been the queen-breeder in the apiary of the U. S. Department of Agriculture, Washington, D. C., for several seasons, as well as privately conducting the Birdcroft Apiaries in Tennessee since that time. His queens have become famous, and it is with pleasure we offer his services to our customers in the management of this department.

Our "Falcon" Queens are unexcelled in honey-gathering qualities; they winter well, and are gentle. They cap their sections snow-white, and breed early in spring.

Our Mr. Martin is particularly an authority on Caucasians, as he bred much of the stock sent out by the U. S. Department of Agriculture which other breeders are using.

Get our Improved "Falcon" Queens, and increase your honey yields.

Price List of "Falcon" Queens

Three-band and Golden Italians, Caucasians, and Carniolans

BEFORE JULY 1		AFTER JULY 1	
Untested.....	One, \$1.00; six, \$5.50; 12, \$10.00.	One, \$.75; six, \$4.25; 12, \$ 8.00	
Select Untested.....	One, 1.25; six, 6.75; 12, 12.75.	One, 1.00; six, 5.50; 12, 10.00	
	Tested, \$1.50 each	Select Tested, \$2.00 each	

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on reverse side of the cage-cover. Safe arrival and satisfaction guaranteed.



Falcon Square Jars

Honey can not be put up in more attractive packages for exhibition purposes or the grocery trade than in glass, and for this purpose the square honey-jar is best and most convenient, besides economizing space. Prices:

5-oz. with cork stoppers.....	{ \$2.25 per crate of 100
	{ \$1.25 per crate of 50
8-oz. with spring top.....	{ \$3.75 per crate of 100
	{ \$2.00 per crate of 50
1-lb. with spring top.....	{ \$4.75 per crate of 100
	{ \$2.50 per crate of 50

The glass top with spring attachment is the only absolutely safe method of bottling honey, as corks and screw-caps will leak. Still, we furnish the 1-lb. and the 8-oz. jars with corks, for those who desire them, at 75 cts. per 100 less and 40 cts. per 50 less than with the spring top. We do not sell less than crate lots.

W. T. Falconer Manufacturing Co.

Jamestown, New York, U. S. A.

A Fifty-Cent Bee-Book, Bound in Cloth, and Gleanings for one Year, for \$1.25.

WE have made special arrangements with the publishers of the *Farm Journal* by which we are able to supply our customers with a very neat, cloth-bound, beautifully printed, and illustrated in half-tone, copy of the Biggle bee-book. It is only $5\frac{1}{2} \times 4$ in., by $\frac{3}{8}$ in. thick—just right to carry in the pocket. We have carefully gone over this little work, and consider it orthodox in its teachings throughout. It is just the thing for the busy man who would like to get a bird's-eye view of bee-keeping, and who has not the time to read the more comprehensive works. The book is, in fact, bee-keeping in a nutshell, boiled down, containing only the best practices known to the profession.

IT IS A LITTLE GEM

Beginners especially will find it very helpful; and as a companion to our more comprehensive work, the A B C and X Y Z of Bee Culture, nothing could be better. A reading of the little book will give one a brief and comprehensive idea of the business as a whole. The larger work will give the details.

We will include the A B C and the Biggle book both at \$1.75. The regular list price of the two is \$2.00.

Or we will include Gleanings, A B C, and the Biggle book for \$2.50.

The A. I. ROOT CO., Medina, Ohio

FOR NORTHWESTERN BEE-KEEPERS



Shipping-cases with sliding cover and corrugated paper for comb honey.

(We offer some old-style 12-inch 2-row cases at 25 per cent off.)

Glass and tin packages of all kinds and sizes for extracted honey.

Extractors, Strainers, Wax-Presses, and everything else you may want

There is nothing finer than the goods we sell.

PILCHER & PALMER,
Northwestern Managers A. I. Root Co., 1024
Mississippi Street, St. Paul, Minn.

40 Years Among the Bees

C. C. MILLER

Dr. Miller is too well known among the bee-keeping fraternity to need any introduction. His book is charmingly written, and covers his experience in detail. Price \$1.00, postpaid.

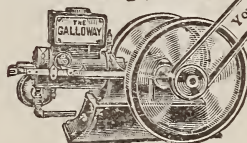
The A. I. Root Company, Medina, Ohio

\$50 to \$300 SAVED

We are manufacturers, not merchants. Save dealers, jobbers and catalog house profit. I'll save you from \$50 to \$300 on my High Grade Standard Gasoline Engines from 2 to 22-H.P.—Price direct to you lower than dealers or jobbers have to pay for similar engines in carload lots for spot cash.

GALLOWAY

Price and quality speak for themselves and you are to be the sole judge. Sell your poorest horse and buy a 5-H.-P. only \$119.50



Direct From My Factory on 30 Days' Free Trial. Satisfaction or money back. Write for special proposition. All you pay me is for raw material, labor and one small profit. Send for my big BOOK FREE.

Wm. Galloway, Pres.
Wm. Galloway Co.
1685 Galloway Station
Waterloo, Iowa

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price \$1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent), cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped

cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb honey, 16 to 17; No. 1 white comb honey, 15 to 16; fancy white extracted, 8 to 9; light amber, 7 to 8; amber, 6 to 7. Beeswax, 30.
BLAKE-LEE CO.

August 23.

INDIANAPOLIS.—There is a good demand for best grades of honey, with market fairly well supplied. For fancy white comb honey producers are being paid 16 cents; for No. 1 white, 14; finest extracted in 5-gallon cans, 8. No demand for amber or off grades. Producers of beeswax are receiving 28 to 30 cents.

August 19.

WALTER S. POWDER.

CINCINNATI.—There is just beginning to arrive here at Cincinnati some Western honey, which finds ready sale, in a small way, at 16; larger quantities at 14½. Extracted table honey is exceptionally brisk, prices ranging from 8 to 9. Amber honey, fair demand, is selling at 6 to 6½. Beeswax slow at \$33.00 per 100 lbs. This is our selling price, not what we pay.

August 26.

C. H. W. WEBER & CO.

ALBANY.—We are pleased to note indications of a better honey demand than last season, which was most discouraging. Demand was poor, and quality of honey unsatisfactory. We have some demand for new-crop honey, although prices are not established; seldom have to sell. Early receipts of honey less than 15 cts. per lb., any season.

August 19.

H. A. WRIGHT.

KANSAS CITY.—Receipts of comb honey are light at present, and the demand good; shipments arriving so far are fine, and selling on arrival. We quote No. 1 white comb, 24-section cases, \$3.25; No. 2 white and amber, 24-section cases, \$3.00; old extracted, white, per lb., 7; no amber extracted in stock. Beeswax, per lb., 25 to 28.

August 17.

C. C. CLEMENS PRODUCE CO.

PHILADELPHIA.—There has been considerable activity in the honey market in the last ten days. The uncertainty as to the amount of honey-dew in the local market has kept dealers guessing, and has caused considerable inquiry. There have been some few sales, but it is a little early for deliveries as yet. We quote fancy comb honey, 16 to 18 in small lots; light-amber comb honey, 13 to 14; fancy water-white extracted honey in 60-lb. cans, 7; amber, 6½; in barrels, 6. Beeswax is firm at 38.

August 25.

WM. A. SELSER.

SIMPLY DELICIOUS!

The finest car of Sage Honey that ever crossed the "Rockies" just arrived, and we are selling it like "hot cakes" in crates of two 60-lb. cans at 9½c per lb. Samples 10c.

If you want Honey that's truly delicious send for some to-day.

THE FRED W. MUTH CO.

51 WALNUT STREET

The Busy Bee-men

CINCINNATI, OHIO

Extracted Honey Wanted

We are always in the
market.

If you have any to sell, mail
small average sample to

**NATIONAL
BISCUIT COMPANY**

Purchasing Department

Washington Bvd. & Morgan St.
CHICAGO, ILL.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds

If you have any to dispose of, or if you
intend to buy, correspond with us.

We are always in the market for WAX
at highest market prices.

HILDRETH & SEGELKEN

265-267 Greenwich St., 82-84 Murray St.
NEW YORK

CHAS. ISRAEL & BROS.

486-490 Canal St., NEW YORK

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

**HURT-CAIN COMPANY (Inc.), HONEY
BROKERS, MEMPHIS, TENN.**

We never buy honey, but sell for ship-
per's account. Highest prices obtained.
Consignments of choice Comb Honey so-
lited.

HONEY! HONEY!!

If you are in want of extracted or comb honey, we will
be pleased to quote you, as we have several cars of
California honey in stock. Write to-day for prices and
samples. :: :: :: :: :: ::

If you have any honey to offer, state kind it is, how
it is put up, and lowest price you expect for same,
delivered Cincinnati. :: :: :: :: ::

C. H. W. WEBER & CO.

2146-48 Central Ave., Cincinnati, Ohio

GLEANINGS IN BEE CULTURE

E. R. ROOT
Editor

A. I. ROOT
Editor Home Department

H. H. ROOT
Assistant Editor

J. T. CALVERT
Business Manager

Department Editors:—Dr. C. C. Miller, Prof. A. J. Cook, J. E. Crane, "Stenog," Louis H. Scholl, Wesley Foster, G. M. Doolittle, R. F. Holtermann, W. K. Morrison.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. We give notice just before expiration, and further notice if the first is not heeded, before discontinuing. Subscribers are urged to renew promptly in order to avoid interruption in receipt of GLEANINGS; or, if unable to make payment at once, to advise us when they can do so, which will be considered as an order to continue. Any one wishing his subscription discontinued should so advise us upon receipt of expiration notice and he will not be annoyed by further notices.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. Bondonneau, 56 & 58 Ave. Felix Faure, Paris 15. *Per year, postpaid, 7½ fr.*

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/.*

CONTENTS FOR SEPTEMBER 1, 1909

EDITORIAL.....	521	Virgin Wax White.....	531
High-wheeled Autos for Out-apiary Use.....	523	Alsike, Effect on Stock.....	532
STRAY STRAWS.....	524	Selling Honey at Factories.....	532
Robbers, After Use of.....	524	Entrances, Upper.....	533
Swarms, Energy of.....	524	Stomach of Bee.....	534
NOTES FROM CANADA.....	525	Hornets' Nest.....	538
Quality of Canadian Honey.....	525	Cappings, Greasy, Cause of.....	538
Capping Honey.....	525	Capping, Two Kinds by One Colony.....	539
Ventilators in Supers.....	525	Bees Shipped in Hot Weather.....	540
Electricity and Nectar Secretion.....	525	Honey-dew Honey.....	540
Honey-knives.....	525	Carpentry for Bee-keepers.....	541
Bee-escapes.....	525	Bee-keeping in Cuba.....	542
BEE-KEEPING AMONG THE ROCKIES.....	526	Color Sense of Bees.....	543
Propolis in Supers.....	526	Packing Bulk Comb Honey.....	544
Baits in Supers.....	526	Cell-building with Caged Queen.....	545
Unglassed Shipping-cases.....	526	HEADS OF GRAIN.....	546
CONVERSATIONS WITH DOOLITTLE.....	527	Foul-brood Law in Connecticut.....	546
Taking off Comb Honey.....	527	Introducing by Spraying.....	546
GENERAL CORRESPONDENCE.....	528	Queens Flying Away.....	546
Foundation, Use of.....	528	Ripe Cells by Mail.....	546
Unsealed Cells Next to Wood.....	529	Bees Electing Water.....	547
Honey, Grading for Exhibition.....	529	Extracting from Brood-nest.....	547
Alsike Poisoning.....	530	Bee on Different Flowers at Same Trip.....	547
Capping-melter Darkens Honey.....	530	Golden Bees Defined.....	547
Honey, Removing from Hives.....	530	Colors and Odors Disliked by Bees.....	547
Alsike Not Poisonous in Wisconsin.....	531	Swarm Before Queen-cells are Sealed.....	547
Extracting 18,000 lbs. with Two-frame Novice.....	531	Candying of Honey-dew.....	547
Crossness of Bees before Rain.....	531	OUR HOMES.....	548

HARDY BEES!

Bees of the Superior Stock, furnished by J. P. Moore, of Kentucky, are the best honey-gatherers that I ever owned. They are gentle—smoke is seldom necessary in handling them, and very little at that. Besides this, they are very hardy—seem to have more than the ordinary amount of vitality. We had a very striking example of this the second spring that we had bees in Northern Michigan. About half of our bees were of this strain, and the other half of several different strains. The Moore strain of bees were quiet all winter, consuming very little honey, and coming out in the spring fully as strong as they went in. Then, still further, they "stood up" during the trying weather that followed after they were set out of the cellar. When colonies of other strains were dwindling away and succumbing to the cold, these bees held their own; and when the harvest opened up the last of June they certainly were far ahead of all the other bees we had in the North. They were treated the same the previous

fall, kept in the same cellars, protected and fed the same in the spring, but they came out ahead. It was simply in the *breed of the bees*.

We brought 100 queens of Mr. Moore this year to use in making increase. It was not that we did not have just as good stock in our own yards, but we could buy them cheaper than we could rear them.

Now is the time to buy queens and have them introduced and all ready to breed from next spring. I can furnish queens of this strain (they will be sent out by Mr. Moore) at \$1.00 each, or I will send the Review for 1909 and 1910 and one of these queens for only \$1.50. Mr. Moore has 700 nuclei, and will fill orders by return mail. Send me \$1.50, and I'll at once forward your order to Mr. Moore, send you the back numbers of the REVIEW for this year, and then keep on sending it to you to the end of next year.

W. Z. HUTCHINSON, Flint, Mich.

I. J. STRINGHAM
105 PARK PL.

New York City

furnishes bees, and every kind of material bee-keepers use. Tested Italian queens, \$1.25. Catalog free.

Apiaries: . Glen Cove, L. I.

GOLDEN ADEL QUEENS

Win many friends. Cecil E. Simon, of Blue Lake, Ontario, Canada, says, under date of August 3d: "The queen has arrived safe, and I must say she is a fine large one. I showed her to the postmaster, and he had sent some I had received from another breeder. We said, 'Why, say! she is twice as big as those last ones you received through here.' If she proves as good as she looks you will hear from me again."

Untested queens.....	1	\$ 85	6	\$4 80	12	\$ 9 00
Tested queens.....	1	00	5	50		10 50
Select tested queens....	1	50	8	00		

They will please you. Safe arrival and pure mating guaranteed. Prompt shipment.

J. R. McCORKLE, Wingate, Ind.

Swarthmore's Pedigreed Goldens
Swarthmore Apiaries, Swarthmore, Pa.



SPECIAL PRICES for August and September on Italian queens and bees. Fine yellow golden, and three-banded queens by return mail. Virgins, 25 cts.; untested, 65 cts., or \$6.00 a dozen; tested, 95 cts.; and if these queens are not as good as any queen you ever had for \$1.50 or \$2.00, return them and get your money. If you try one of my queens you will want more. I have 100 stands of Italian bees, more than I can attend to, with tested Italian queens in Dovetail hives, which I will sell at reduced price as long as they last at \$4.75; 8-frame nuclei, with queen, \$2.75. Directions go with queen.

J. L. FAJEN, ALMA, MO.

QUEENS BY RETURN MAIL.

Long-tongue Italians by return mail, mated to golden Italian drones. Select untested queens, \$1.00 each; 6, \$5.00; 12, \$9.00; 20 or more, 65 cents each. See my ad. in August 15th issue of GLEANINGS.

W. M. PARRISH, Lawrence, Kas.

PATENTS 25 YEARS' PRACTICE.

CHARLES J. WILLIAMSON,
Second Nat'l Bank Bldg., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts.

Patent Counsel of
The A. I. Root Co.



BANG!!!

Take a Hunting Trip with
ROOSEVELT
in
Africa

10 Post Card Scenes FREE

These remarkable Post Cards are just out and we are first to offer them to the public. Every card is from an actual photograph of Roosevelt on his great hunt in the jungles of Africa. He is having great success and has killed fine specimens of lions, elephants, rhinoceros, hippopotamus, buffalo, etc. These pictures will be priceless in future years. The whole world is watching this trip of America's great Ex-President. These Post Cards are exceedingly interesting to everyone, both young and old. Every reader of this paper should certainly send and get this great set of African views on Post Cards for we will send you the full set of 10 cards FREE. Nothing small or cheap about them—they're fine. For postage and for a sample copy of Farm & Stock we ask only a dime (coin or stamp). This is the World's Best Corn Journal and we want you to see it. Farm & Stock is the handsomest and greatest farm magazine for the corn belt farm home. We offer these fine Roosevelt cards just for your trouble in sending in your name for a copy. It is beautifully printed and always full of good reading. You will be delighted with the Grand Old Corn Journal. We will also offer you 50 or 100 more new Post Cards, just out. Send the 10c and your name TONIGHT sure.

The FARM & STOCK COMPANY

Box G Saint Joseph, Missouri



GLEANINGS IN BEE CULTURE

Devoted to Bees, Honey, and Home Interests

Established 1873

Circulation 35,000

72 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to inch.

SPACE RATES. To be used in one issue. One-fourth page, \$12.50; one-half page, \$25.00; one page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2 $\frac{3}{8}$ inches.

Column length, 8 inches.

Columns to page, 2. (Regular magazine page.)

Forms close 10th and 25th.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

INDEX TO ADVERTISEMENTS

Banking by Mail.	17	Real Estate.....	18	Patents.	
Savings Deposit Bank.....	13	Leininger, F.....	17	Williamson, C. J.....	5
Bee-supplies.		Lockhart, F. A.....	16	Poultry-supplies.	
Blank & Hawk.....	10	McCorkle, J. R.....	5	Mann Co.....	15
Cary, W. W., & Son.....	16	Mercer & Wurth.....	16	Myers, F.....	15
Falconer, cover.....	11	Miller, I. F.....	16	Publications.	
H (ton, Geo. E.....	11	Mondeng, C.....	16	American Bee Journal.....	10
Hunt & Son, M. H.....	11	Moore, J. P.....	16	Poultry Gazette.....	5
Jenkins, J. M.....	10	Mott, E. E.....	16	Railroads.	
Jepson, H. H.....	9	Parrish, W. M.....	5	Pere Marquette.....	13
Koeppen, Chas.....	16	Quirin.....	17	Roofing.	
Minnesota Bee Supply Co.....	10	Robey, L. H.....	16	Anderson Mfg. Co.....	14
Muth Co., F. W.....	2	Shuff, W. A.....	17	Souvenir Cards.	
Nebel, J. & Son.....	9	Simmings, S.....	16	Farm and Stock Co.....	5
Nysegander, Joseph.....	11	Sires Brothers.....	16	Stoves and Ranges.	
Plicher & Palmer.....	12	Swarthmore Apiary.....	16, 17	Kalamazoo Stove Co.....	14
Pouder, Walter S.....	12	Trego, S. F.....	17	Majestic Mfg. Co.....	15
Rea Bee and Honey Co.....	10	Bicycles.		Rochester Radiator Co.....	14
Root Co., Syracuse.....	11	Meade Cycle Co.....	15	Tools.	
Stringham I. J.....	5	Classified Ad's.		Myers, C. A.....	14
Toepperwein & Mayfield.....	5	Bees and Queens.....	19	Potato Implement Co.....	15
Bees and Queens.		Bee-keepers' Directory.....	19		
Case, J. B.....	17	For Sale.....	19		
Fajen, J. L.....	5	Help Wanted.....	19		
Fluharty, C. O.....	16	Honey and Wax Wanted.....	18		
Hart, J. F.....	17	Honey and Wax for Sale.....	18		
Hutchinson, W. Z.....	5	Poultry.....	19		
		Lamps.			
		Best Light Co.....	13		
		Land for Sale.			
		LaBaume, F. H.....	15		
		Manure-spreaders.			
		Galloway, W.....	13		

ALEXANDER'S WRITINGS

on PRACTICAL

BEE CULTURE

\$1.00**With GLEANINGS ONE YEAR****\$1.00**

The writings of the late E. W. Alexander, who needs no introduction to the readers of GLEANINGS, have recently been collected in book form. A glance at the table of contents will show the scope of the book.

Table of Contents of the Alexander Book

Alexander Plan for Weak Colonies.
 Bee-keeping as a Business.
 Brood-rearing in Spring.
 Comb v. Extracted Honey.
 Diseases of Bees.
 Disposing of the Honey Crop.
 Extracting Uncapped Honey.
 Feeding Back Extracted Honey.
 Foul Brood, European and American.
 Hive-covers.
 Hives, etc., to Adopt if Starting Anew.
 Honey per Colony.
 Honey-production.
 Honey-tanks.
 Increase, Making v. Buying Colonies.
 Italians, Yellow v. Leather-colored.
 Locality, What Constitutes a Good One.
 Nuclei for Rearing Queens.
 Organizing for Better Prices.
 Profits in Bee-keeping.
 Queens and Queen-rearing.
 Queens for Early Increase.
 Queens, Several in One Hive.
 Queens to be Reared from Best Stock.
 Spring Dwindling.
 Spring Feeding.
 Spring Management.
 Sugar, Loaf, for Feeding.
 Superseding Old Queens.
 Swarms, New, to Dispose of.
 Things Not to Do.
 Transferring Bees.
 Ventilation of Bee-cellars.
 Wintering.
 Wintering in Cellar.

The
 A. I. Root
 Company,
 Medina,
 Ohio

For the en-
 closed remit-
 tance of \$1 please
 send Gleanings to

Send the Alexander book to

Name _____

Address _____

If Gleanings is to be sent to same party
 as book, sign only in last two blank lines.

\$1 WITH GLEANINGS ONE YEAR \$1

Canadian Postage 30c Extra

Special Prices Root's Bee-supplies

WE ARE overstocked on some articles, and the rush of business being practically over with, we have decided to make special prices on the following list of goods, f. o. b. San Antonio. When ordering supers and hives you should order in lots of 5 and 10 or multiples thereof; sections, 500 or multiples; frames, 100 or multiples; shipping-cases, 50 or multiples. These are first-class goods made by The A. I. Root Co., but most of them have been in stock all the season and longer. We are giving designations just as given in Root's Catalog. If you have none write us for one, or write us for any other information.

Frames

9500 Shallow Frames, 4½-inch end-bars each	\$1.25 per 100
1900 Thick-top Staple-spaced Frames, P W, each	1.95 per 100
1500 Shallow All-wood Frs. for I super, ½-in. top-bars, PW,	1.25 per 100
2400 Shallow All-wood Frames for I super, ½-in. top-bars,	1.25 per 100

Hives, Covers, and Bottom-boards

Covers must be ordered in lots of 50 or multiples.

40 Danz. AE5-10 at 85c each.	300 8-10 at 38c each.
500 AE 5-10 PWKD at \$1.05 each.	300 A-10 at 18c each.
500 5-10 PWKD at 60c each	150 B-10 at 26c each.
250 G-10 at 26c each.	100 A-8 at 17c each.
	100 B-8 at 25c each.

The above prices are good only until the above number of goods are sold, and only when this advertisement is mentioned. Remittance must accompany each order. Order quick before they are all gone.

Supers, Packed five in each package

330 2P-10 at 33c each.	175 2S-8 at 29c each.
305 4P-10 at 47c each.	55 4S-8 at 42c each.
135 2I-10 at 33c each.	200 2P-8 at 29c each.
115 2S-10 at 33c each.	80 J5-8 at —c each.

Sections---B grade, plain, packed 500 in a package

13,000 4x5x1½ at \$2.85 per 1000	3500 at 3½x5x1½ at \$2.85 per 1000
----------------------------------	------------------------------------

We also wish to sell 4000 4x5x1½ No. 1 plain sections at \$3.85.

Shipping-cases for Comb Honey

500 12-inch, 4-row, 3 and 2 inch glass	at \$12.50 per 100
350 10-inch, 4-row, 2-inch glass	at 11.50 per 100
200 12-inch, 2-row, 2-inch glass	at 7.40 per 100
200 16-inch, 2-row, 2-inch glass	at 8.25 per 100
250 8-inch, 3-row, 2-inch glass	at 7.50 per 100
350 6¼-inch, 3-row, 2 and 3 inch glass	at 7.50 per 100
550 7½-inch, 4-row, 3-inch glass	at 7.50 per 100
250 7½-inch, 3-row, 3-inch glass	at 7.50 per 100
300 9¼-inch, 4-row, 3-inch glass	at 10.50 per 100
50 9¼-inch, 3-row, 3-inch glass	at 10.00 per 100

If you can use any of the cases in the foregoing, list with prices is good in lots of 50 or multiples thereof, as they are put in packages of 50.

Toepperwein & Mayfield
1322 South Flores St. San Antonio, Texas



WITH A FULL LINE OF

Bee-keepers' Supplies

We can please you with quick shipments and satisfactory prices and service. Our goods are the ROOT CO.'S make, hence there is nothing to fear as to quality. A card will bring you our 50-page catalog by return mail. Send us your inquiries. We are able to supply you on short notice Italian bees, queens, and one, two, and three frame nuclei.

John Nebel & Son
Supply Co. High Hill, Montg. Co., Mo.

Mr. Bee-Man:

You can save time, worry, and money by ordering your supplies for next season now.

I have a full line of Hives, Supers, Sections, Foundation—in fact, every thing you need in the apiary. If you do not have a catalog, send for one to-day.

182 H. H. JEPSON Boston,
Friend St. Phone Haymarket 1489-1 Mass.

The Best Comb-honey Combination

I have 112 colonies all in Danz. hives with the exception of ten, which are in Danz. divisible hives, and these will go into the regular Danz. body in the spring. The regular Danz. body, with the right management, is the best combination in the world for comb honey. I let the big-hive men laugh, but when we go to market, their product is no competition to mine. The dealers say to them, "If yours is as good as Hall's bring it in and we will take it." And it is all in the form and management of the HIVE.

St. Joseph, Mich., Sept. 26, 1908.

C. L. HALL.

You can get the same results by using the Danzenbaker hive. Nothing to equal it for the production of comb honey. The booklet "Facts about Bees" tells all about this hive. Sent to any address on receipt of ten cents.

Write for quotations on the Danz. hives for your apiary.

The A. I. Root Company, Medina, Ohio, U. S. A.

PUBLICATIONS ON BEE CULTURE

Please use this order form by checking in the margin the items wanted

The pamphlets and booklets listed below are of more than ordinary interest:

- ☐ **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- ☐ **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- ☐ **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- ☐ **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- ☐ **Transferring Bees.** A 14-page booklet giving instructions and illustrating appliances. No need to keep your bees in old out-of-date hives when they can easily be transferred into new hives and earn profits for you. Price 10 cts.
- ☐ **Bee-hunting.** Gives information necessary to enable one who is active and intelligent to engage in bee-hunting with success. It is well gotten up and worth the price, which is 25 cents.
- ☐ **Spring Management of Bees.** A 14-page booklet detailing the experiences of some successful bee-keepers, and giving instructions on this oft-times perplexing matter. Price 10 cts.
- ☐ **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- ☐ **How to Keep Bees.** A book of 228 pages, detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.10 postpaid.
- ☐ **The A B C of Bee Culture.** A complete encyclopedia on bees, of nearly 540 pages, fully illustrated. \$1.50 postpaid; half leather, \$2.00.
- ☐ **Gleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.

This sheet may be used as an order sheet by properly checking on the margin your signature, and remittance, if required.

The A. I. Root Co., Medina, O.:

Please send me the items checked above;
I inclose \$..... to cover the cost.

Name.....

Street Address or R. F. D.....

Town.....

G.B.C. 9-1

State.....

Better Supplies

More Profits

You know how large an extent the profits of bee culture depend upon the right kind of supplies, and you know, too, that just as important as the right supplies is to get them when you want them, at the right price.

In every way—location, stock, and low prices—we are fitted to serve you to your profit.

We Ship on Time

and you get the goods when you want them. We are centrally located, and can ship direct by boat and over thirty different railroads. Our stock is the best, and we sell the best goods at the lowest prices. What more can you want? Write today for our big book and special prices for this month.

Blanke & Hauk Supply Co.
1009-13 Lucas Ave. St. Louis, Mo.

DOLL SHIPPING CASES

ARE VERY WELL MADE

Of fine white basswood with one-piece cover and bottom. Can furnish with either corrugated paper or "no-drip sticks."

DOLL SHIPPING CASES

Are made for any number or size of sections with either 2 or 3 inch glass front. WE HAVE LARGE STOCK ON HAND which means prompt shipment, and our prices are lowest.

HONEY PACKAGES IN TIN

For shipping or storing extracted honey prevent leakage, and taint from wood; being square they are extra strong, and economize space.

1-gallon cans, 10 in a box.
5-gallon cans, 1 or 2 in a box.

SEND FOR 1909 ESTIMATE

MINNESOTA BEE SUPPLY CO.

123 Nicollet Island,
Minneapolis, Minn.

ROOT'S GOODS

ARE MONEY-SAVERS

We carry a full line of supplies, bees, queens, etc., and can supply you with any thing in the BEE LINE. Queens, any quantity, tested, \$1.00; untested, 75 cts. each.

REA BEE & HONEY CO.
REYNOLDSVILLE, PENNA.

SUPPLIES... and QUEENS

Every thing needed by the bee-keeper, and purest strain of Italian queens and bees. Tested queens, \$1.50; untested, 75c.

J. M. JENKINS

WETUMPKA

ALABAMA

Every Bee - Keeper Needs It

QUEEN Fine, Standard-Bred 25 cts.

WARRANTED ITALIAN



When taken with the American Bee Journal for One Year.

During September (this month) we offer, to a new subscriber, the American Bee Journal a year and one Standard-Bred Untested Italian Queen—both for only \$1.00. This is a very small price for the old American Bee Journal a whole year and for such a valuable Queen. The Journal alone is 75 cents—Sample Copy FREE. We also offer a Year's Trial Trip to a New Subscriber, for 50c. Better send now for both Journal and Queen at one dollar. Address,

AMERICAN BEE JOURNAL, 146 West Superior Street, CHICAGO, ILL.

Oldest Bee-Paper in America

Headquarters for
**NEW YORK
 STATE**

Bee-
 Supplies
 of
 All
 Kinds.

THE A. I. ROOT CO.
 SYRACUSE, :: NEW YORK

THEY ARE HERE.

The Best and Largest Stock of Root's Goods
 Ever in Western Michigan.

As I was able to clear up my stock closely last season, every thing is new. Danz. and all Dovetailed hives with the $\frac{3}{8}$ bottom-boards. Shipping-cases with the corrugated paper. The newest design of extractors. In fact, every thing fresh from the factory, and of latest design.

**SEND ME A LIST OF YOUR WANTS
 AND LET ME MAKE YOU FIGURES**

The goods are here, my time is yours,
 and I want to serve you.

I can still take a few more orders for my strain of bees and nuclei. See ad. in back numbers. And I want beeswax, for which I will pay cash or 3c above cash prices in exchange for goods. Send for my 1909 catalog (48 pages), free.

GEORGE E. HILTON
 FREMONT, MICH.

THE NEW SHIPPING-CASE WITH THE

Sliding Cover and Corrugated Paper

Will help sell your honey for a HIGHER price. Both the grocer and the consumer like it. It is a dust-proof package, yet the honey is easy to get at. If you want top-notch prices, try it. We sell them in Michigan, and they're Root Quality."

We will be at the State Fair at Detroit, September 2-10, and at Grand Rapids at the West Michigan Fair September 13-17 with an exhibit of "Root Quality" goods. We shall be pleased to meet you personally, and have you look over our complete exhibit. Possibly you would like to talk about your next year's needs.

Does your subscription to GLEANINGS expire soon? We are the special representatives of GLEANINGS at these two fairs, and will be glad to receive your subscription there.

M. H. HUNT & SON
 Opposite Lake Shore Depot, Lansing, Mich.



Western Headquarters ..for.. ROOT'S GOODS

My stock of goods is the largest and most complete carried in the West, and with carloads being continually added I am in position to meet every want of the bee-keeper with promptness and satisfaction.

**We sell ROOT'S GOODS here at Des
 Moines, Iowa, AT ROOT'S FAC-
 TORY PRICES, wholesale and retail.**

Send for catalog to-day, or send us a list of the goods you need and we will name you prices, according to quantity, by letter.

Address **JOSEPH NYSEWANDER**
 565 and 567 W. 7th St. DES MOINES, IOWA

"If Goods are wanted Quick, Send to Pouder."

Established 1889

The Business End of the Bee

By the Bee Crank



This is a favorite expression with the humorist, and the bee certainly has a business end, and a successful one, too; but it is possible that the constant search of the humorist for something with a point to it is responsible for his mistake in selecting the wrong end of the bee as its business end.

The fact that bees succeed in their business, even under very adverse circumstances, has made many bee-keepers careless regarding small details, which if attended to would add very largely to the profits. Why not give the bees a square deal since it will be dollars in your pockets to do so?

For more than twenty years I have been scouring the country for things which will help the bee in its business of gathering and storing honey. In my catalog you will find a complete list of those which have made good. Let me send it to you free and it may remind you of something your bees have asked for and you have neglected to provide.

**Root's
Goods
at
Root's
Prices
with
Pouder
Service**

Right at this time the "Pouder Quick Service" means a great deal to the bee-man. With bee-line steam and electric roads radiating in every direction from Indianapolis, neither your order nor your shipment loses any time in transit.

Honey. I have been very fortunate in accumulating the largest stock of finest quality of honey that I have ever had on hand at one time before. Many of the best bee-keepers in Michigan and Wisconsin having sent their honey to me. I find that many bee-keepers as well as dealers are taking care of their home trade by getting a supply here. If interested write for my monthly quotations of the Indianapolis honey market. It is free.

Indiana State Fair. If you come to the fair make it a point to meet your bee-keeping friends at my exhibit, which will be in Horticultural Hall as usual. Leave your wraps and lunch-baskets in our care and have it understood with your companions that if you become separated in the crowds you will immediately meet at my exhibit. I will have on exhibition a complete line of Root Bee Supplies and some of the finest honey and beeswax that you have ever seen.

Write me about anything pertaining to the bee industry and expect an immediate reply.

Walter S. Pouder, Indianapolis, Indiana

859 Massachusetts Avenue

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio

H. H. ROOT, Assistant Editor

E. R. ROOT, Editor

A. L. BOYDEN, Advertising Manager

A. I. ROOT, Editor Home Department

J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

VOL. XXXVII

SEPTEMBER 1, 1909

NO. 17

EDITORIAL

By E. R. Root.

GETTING NEW HONEY ON THE MARKET EARLY.

EVERY year, for some reason, there seems to be an unusual delay in getting new comb honey, or extracted either, for that matter, on the market just when there is a clamoring demand for it. We have no doubt that there are many thousands of pounds of choice new comb honey ready to put in shipping-cases; but experience in the past shows that it will be a month, or perhaps two, before it is ready to be shipped. As it is, it all comes on the market with a rush—the inevitable tendency of which is to depress prices. If it could be shipped out, a little of it beginning the middle of August, continuing through September and along till October, *no faster than the market can take it*, prices will seek and hold a good level.

Those who know they have some choice honey should immediately seek out the buyers, state quantity and quality, and secure bids.

HONEY SODA-WATER.

OUR old friend Percy Orton suggests a new outlet for honey of a strong aromatic flavor. He writes:

I think I have found an extra-good market for fine-flavored extracted honey of the light-colored varieties—namely: At soda-fountains where fruited cream is served, use in its place a large spoonful of extracted honey on the ice cream. I am selling raspberry, white-clover, locust, and basswood blend, at \$1.25 per gallon can. Write this up for the benefit of others, and try the sale yourselves.

PERCY ORTON.

Northampton, N. Y., Aug. 18.

While raspberry and clover have mild flavors, basswood is strongly aromatic, and in our opinion it would show its individuality on cream more than some of the milder honeys. It occurs to us in this connection that some of these strong-flavored honeys that are a little too strong for table use would be just the thing for fruited cream. For example, honey from hoarhound is so bitter and strong that no one can eat it; but a little of it in candy is very delightful. In the same way it would seem to us that a hoarhound-honey soda would take well with the general public, especially in the winter time, for those who are inclined to coughs or colds. Perhaps buckwheat, so much prized in the eastern parts of the United States, would make quite a run at the fountain. We suggest

that bee-keepers everywhere try using it. Get the proprietors of the soda-fountain to put up cards advertising honey cream sodas.

ELECTRICITY OR A LOW BAROMETER FAVORABLE TO THE SECRETION OF NECTAR.

ON page 441 of this issue reference is made to "electrical conditions" just preceding a rainstorm, that are thought to be favorable for the secretion of nectar. Like Mr. Holtermann we doubt whether electricity has anything to do with the matter. Just preceding a heavy rainstorm in mid-summer the atmosphere is heavy and muggy, not to say uncomfortable to a human being. While it is undeniable that, just preceding a down-pour, nectar seems to be secreted more freely at times, we would attribute that condition to the atmosphere—a condition that affects both thermometer and barometer. The electric display in the heavens that often follows or accompanies a storm is probably only an incident to a low barometer. There may be a low barometer, a spurt of nectar, but no lightning or thunder.

THE NATIONAL CONVENTION AT SIOUX CITY, IA.

ATTENTION is drawn to the fact that the next convention of the National Bee-keepers' Association will be held at Sioux City, Iowa, Sept. 22 and 23. The meeting at Detroit last year was one of the largest and most enthusiastic ever held in the history of the Association. While this is an off year for bee-keepers, yet we hope there will be a good attendance. It was never before held in Iowa, and the bee-keepers of that State and vicinity should make a special effort to go. Editor York, of the *American Bee Journal*, writes that he expects to be present, and, nothing preventing, GLEANINGS will be represented by one or more of its editorial force. This will mean, probably, E. R. and H. H. Root.

The railroad rates will be 1½ fare for the round trip for 200 miles each way. Board and lodging will be furnished by the Sioux City Y. M. C. A. lodging at not to exceed 50 cents, and meals at 10 cents up. The program will be given in our next issue. In the mean time, make your plans to go if possible.

HOT OR COLD UNCAPPING-KNIVES; STRAIGHT OR OFFSET BLADE.

CONSIDERABLE interest seems to be aroused over the question of honey-knives—the shape of the blade, whether hot or cold, or

whether they should be used with an up or down stroke.

Mr. J. L. Byer, on page 530 of this issue, writing on the question of hot or cold knives, sums up the matter pretty well when he says that no set rule can be laid down, as it is a matter that depends on the *honey*. He is quite right.

In all the discussion that has been going on, it begins to be apparent to us that possibly a knife with a straight handle, that has no offset, will, after all, be more convenient and easier on the wrist than one of the kind now generally sold. As there will be some uncapping this coming fall, we suggest that some of our honey-producers try a knife having a blade on the same plane as its handle. Get a blacksmith to straighten out the offset in one of your knives, and then try it alongside of one of the standard type.

SOILED, DIRTY, OR GREASY COMB HONEY AVOIDABLE AND HOW; COMMON CENTS AND COMMON SENSE.

MR. WESLEY FOSTER, on page 526 of this issue, draws attention to something that ought to receive more care and thought on the part of bee-keepers than has heretofore been given it. He asks the question why two bee-keepers in the same locality will have such different lots of honey—one white and the sections almost unspotted, while the other will have combs that are yellow, and varnished over with propolis. Then he goes on to suggest a remedy—keep propolis, as far as possible, out of the hive by frequent scraping, and the scrapings away from the reach of flying bees.

According to Mr. W. M. Whitney, in a recent article, watery or greasy sections are due to a lack of proper ventilation, at least in some cases.

This is a good subject for investigation and discussion, and we shall be pleased to hear from our readers who have any thing to offer on the problem, for it is one that involves the matter of *cents* and *sense*. A clean white comb honey will bring anywhere from two to four cents more per pound than another lot of comb honey of the same flavor and filling, with dirty, soiled, or greasy capings. What we want to learn is the common sense that will get the other cents.

NOT GUILTY AS CHARGED.

OUR acknowledgments are due to the *American Bee Journal* for defending us against the implied charge in the *Canadian Bee Journal* that, because we are interested in the sale of supplies, we were therefore "glad" to condemn hives infected with foul brood, or burning them altogether. We have never advised the complete destruction of hives, bees, combs, and all, except when there was only one colony in the yard involved. If the disease reappeared we have always recommended treating it by what is called the McEvoy plan—shaking off on to foundation, with this difference—we advised applying

momentarily a flame to the inside of the hive as an additional precaution. But this scorching-out should not in any way affect the utility of the hive, for the inside is merely browned slightly. Such procedure could not increase the sale of hives one iota. Bro. Hurley knows that.

For that reason we can scarcely believe that he meant to imply that we would be "glad" to have hives burned up or condemned in order that we might sell new hives to the poor fellows who have already suffered from the ravages of the disease.

We did not refer to the matter in our last issue, because we could not think that he meant what his words implied; nor would we have made any reference to it at this time except that the *American Bee Journal* seems to have gotten the same impression that the rest of us did.

Perhaps we ought to say that the editorial in the *American Bee Journal*, so stoutly defending us against the charge of selling our opinion, was unsolicited, and came as a complete surprise.

REVISED HONEY-CROP CONDITIONS FOR 1909.

THE situation since our last issue, pages 488 and 508, is practically the same as already reported. There is increasing evidence to show that, with some exceptions, there has been a fair crop in the alfalfa regions, taking in most of the irrigated districts where alfalfa is grown. In California the condition remains about the same. There has been from one-third to half a crop of sage and alfalfa.

There is additional evidence to show that in the region of Illinois, Indiana, Ohio, and Southern Michigan there has been a large amount of honey-dew gathered; but Illinois seems to have suffered the worst of any State in the Union from a failure of honey of all sorts. What little the bees did gather was honey-dew.

More reports continue to show from a third to half a crop of clear white honey in New York and Pennsylvania; a light crop in Maryland and New Jersey, with considerable honey-dew, and a light crop in Kentucky. There was a good yield in Maine and in several other of the New England States, although there are portions in the extreme Northeast where there is a failure.

All reports seem to show a pretty fair yield of honey of first quality and no honey-dew in Canada. In Minnesota and Wisconsin reports are very conflicting, varying from a total failure to a bumper crop.

Taking every thing into consideration, it would appear that the extreme northern part of the country, including Canada, suffered less by reason of honey-dew than that portion east of the Mississippi and immediately north of the Ohio River.

In the extreme Northwest, and eastern part of Oregon, the season, according to the Portland Seed Co., is above the average. In the State of Washington reports are somewhat conflicting.

There is evidence to show that some white-

clover honey, extracted, was held over from last year. There will also be quite a quantity of this year's white clover and basswood, but returns indicate that it will be slow in coming in. It is probable that prices on a strictly pure clover honey, both extracted and comb, will advance some over quotations for last year. While there has been a light crop of clover and basswood, there is no question but that there has been a pretty good yield of alfalfa in most of the Western States. This will have a tendency to level prices on clover. Mountain sage from California will also be somewhat in evidence in the Eastern markets.

The prospects for New York buckwheat from present reports are somewhat unfavorable. Good rains and hot weather which have come in since may change this.

The following report from a commission house came too late for insertion in our last issue, and we use it here. As this house has been gathering data from the West and Southwest, their summary will be read with interest.

Mr. Root.—Your favor of a recent date is received, asking for information as to the prospects, receipts, conditions, and range of prices this year as compared with an average year. As to prospects, we have reports from twelve States as follows: Utah, one report good, one poor; Colorado, ten good, one poor; Idaho, one poor; Kansas, seven good, two poor; Nebraska, one good, one poor; Iowa, eight good, seven poor; Missouri, ten good, three poor; Nevada, one poor; California, two good; Mississippi, two good; Pennsylvania, one good; New Mexico, one good; also have quite a number reporting "too early to estimate," or "season backward on account of rain and cool weather."

Our receipts up to this time have been better than last year; have had no trouble in selling upon arrival; in fact, the demand far exceeds the supply, but we do not really look for as heavy receipts this year as last.

It is a little early as yet to predict prices. We are getting \$3.25 for No. 1 white comb in 24-section cases; \$3.00 for No. 2 white and light amber. There is no new extracted on the market as yet, but a fair supply of last year's crop is selling at 6½ for amber, and 7 for the white. We really look for prices to settle down to about \$3.00 for No. 1 white comb and \$2.75 for No. 2 and light amber. We hope and really believe that we will not have a repetition of last year's prices.

We should like to express our opinion right here in regard to grades, especially for our market. We do not believe it pays the producer to make two grades of his fancy and No. 1 comb, as it is very seldom that a retailer will pay any more for fancy than he will for No. 1, for the reason that he can get just as much for a section of No. 1 as he can for a section of fancy in retailing it. We advocate a No. 1 and a No. 2 grade for white honey and the same for amber.

As to conditions and quality, we will say that so far the quality has been good. We are not troubled here with black honey-dew, but are troubled considerably with poor grading. Some producers think it a good way to work off their off-colored and light-weight sections by putting them in cases faced up with No. 1, but they usually find out that this does not pay.

Kansas City, Mo. C. C. CLEMONS PRODUCE CO.

HIGH-WHEELED AUTOS FOR OUT-APIARY USE.

MR. BYRON WALKER, in his article, this issue, page 533, incidentally refers to the fact that he is using with some satisfaction a high-wheeled Holsman automobile for his outyard work. We wonder if there are not some others of our readers who have tested this or some other type of machine. If there are, we hope they will give us the benefit of their experience. While some of these reports may seem like free advertising for some of

the machines, GLEANINGS will be glad to have the facts brought out for the benefit of its patrons who desire some cheap, quick, and reliable method to get to outyards.

We may say incidentally that high-wheeled automobiles, with solid rubber tires, are fast coming to be an assured success. They will go over muddy roads without skidding, in a way that some of the high-priced pneumatic-tired machines can not. In a limited way we have tested the two types of machines, and have become convinced that, for bee-yard work, the buggy type of automobiles with its solid rubber tires and high wheels has almost reached, if it has not already done so, a stage where the bee-keeper can adopt it to advantage.

Where there are several apiaries from 20 to 25 miles away, it is important to have some quick means for reaching these yards in any kind of weather and over any kind of roads. We are using the pneumatic-tired machine; but when the roads are bad and slippery we have to wait till they dry up. In the mean time work at the yards is neglected.

It is fair to state that the high-wheeled autos have not yet reached the state of perfection that has characterized the lower-wheeled machines with pneumatic tires. The engines of the buggy type are cheaper in construction, in most cases air-cooled, run at a comparatively high speed, and are more or less noisy. In country districts, where horses have not become accustomed to them, a high-wheeled, high-speed, air-cooled engine mounted in one of these horseless vehicles, is likely to put the horse-drawn affair out of business, from the fact that the horse itself may have a regular "conniption fit." The motors of the pneumatic-tired outfits, on the other hand, are of a higher grade, usually water-cooled, slower in speed, and, in some of the best makes of machines, comparatively noiseless. So far for our own use we have continued to use the pneumatics, principally because they are more reliable, better made, and are comparatively quiet while on the road. In our own locality, for example, we can pass almost any sort of horse-drawn vehicle with little or no danger of scaring horses.

We consider this question of the rapid means of reaching outyards a vital one. We believe the day is almost at hand when the horseless carriage will be the cheapest means of reaching these yards. The ordinary cost for gasoline and oil will not exceed a cent a mile as a rule. The ordinary horse, if he be maintained the year round, can not draw a vehicle to a yard short of five cents a mile, if we take into consideration the fact that he has to be fed oats and hay for over six months in the year when he is not in use. The gasoline horse, to carry out the figure, eats only when he is in use, and, moreover, does not require attention three times a day when he is idle in the barn or garage; and, what is more, when he is driven he can be steered among the hives without any danger of spilling the whole load because of a stray sting or two.

STRAY STRAWS

BY DR. C. C. MILLER

I'M HAPPY. Just been down to the apiary, middle of the day, Aug. 18, and bees seem working hard—first time since the long, long dearth. Oh, but it has a beautiful sound! I may yet have fall flow enough to save feeding for winter. Won't that be fine?

BEEN HAVING the fight of my life with black brood, and *I'm on top*. Whoop-de-dooden-doo! [The sympathies of all of our readers will go out to Dr. Miller in his fight against black brood. We also hope he will get a fall crop, because that will help him materially to stay the ravages of the disease.—Ed.]

ALLEN LATHAM has sent me foundation-splints of common chair-seat cane, and a very slight trial makes me think it possible they may be an improvement. Their hardness is in their favor. He says, "They leave no ridges at all in the comb, and the queen lays in cells over them more readily than in cells over the wood splints." But in this locality the splints are no hindrance to laying.

I DON'T KNOW the answer to W. M. Whitney's question, p. 514, and can not verify his statement about greasy-looking brood-combs: first, because I haven't a brood-chamber that hasn't been disturbed; and, second, because I haven't had a honey-flow. He is quite right, that watery combs are different from travel-stain and glue, and has some ground for accusing Editor Root of unfairness in arraigning the Punics as gluers when watery sections were under discussion. But Editor Root's sin was one of omission rather than commission. That is, he failed to emphasize as much as he should the fact that Punics are the worst ever at making watery sections as well as being the worst gluers.

It does seem that bees that fill up close to the cappings ought to store more than those that fill their cells partly with wind; and yet the fact remains that my biggest yields have come from bees that capped white.

THE DRY WAVE may be somewhat fairly measured by the falling-off of Uncle Sam's revenue from the liquor business for the fiscal year ending July 30 last, as compared with the previous year. It was \$7,641,978. Yet they say, "Prohibition doesn't prohibit." [Brewers and distillers generally are loud in their statement that "prohibition does not prohibit." They even go so far as to get statistics (or so-called statistics) that are either garbled from actual reports or manufactured to fit the statements they are trying to prove. But the significant fact is, if prohibition does *not* prohibit, *why* do they use their millions to fight it? Why do they try to get bankers and others who hold brewery stock to oppose local option and prohibition whenever such measures come up for consideration in our State legislatures? As

sure as fate, if brewers sold *more* beer in dry territory, as they claim, you would find those fellows working every time on the side of the dries. Oh, no! they know their business too well. They work for open saloons and a wide-open town every time. O consistency! thou art a jewel.—Ed.]

"THE GREATER ENERGY of a natural swarm has been admitted by practically all authorities and writers," p. 496. Guess that's true; but I'm looking for the fallacy to be exploded some day. R. C. Aikin has already expressed some doubts. Whatever spurt a natural swarm may make for a short time, in the long run it loses. With me swarming always means cutting down the yield, and my bumper crops come from colonies that have little or no thought of swarming. [Understand, we do not claim that bees can *not* be artificially put into the condition of a natural swarm after it has been hived. We do not know; but we do know that a natural swarm is much more active, both in the fields and in the hive than an *ordinary* colony left to itself. On this point we can not think that Langstroth or any other authority has made a mistake. But you have presented quite another angle to the proposition. We are inclined to agree with you, that a colony of bees that never thinks of swarming, and that has been bred up to a state of extra energy, will gather as much or more honey than a colony, and its swarm that loafs several days, swarms, and then gets down to business.—Ed.]

CARELESS gossip does a lot of harm. There's Editor Root—looks like a right nice sort, and yet on page 488 he says what will be understood to mean that bees that have once engaged in robbing "are of no further use to their owner." A base libel on the bees. [Here is a question that admits of honest difference of opinion. While we admit that bees that have engaged in a case of wholesale robbing *can* gather honey afterward from the fields in an honest way, yet those same chaps are ever on the alert; and if any honey is scattered, or if any neighbors are canning fruit, they will do more than enough damage, twice over, to compensate for the little good they do after they went to the bad. In a queen-rearing yard especially, the sooner such bees are dead, the better.]

We have proved it now to our own satisfaction that most of the robbing, if it has not continued too long, comes from one or two colonies or at most a very few. While it is true that a whole yard *might* be involved, yet as a rule robbers come from comparatively few hives in the whole apiary—usually not more than one or two in a hundred. If robbing were not contagious the case would not be so bad; but a colony in a bee-yard that is inclined to rob whenever it gets a chance should be put out of the way. We would not destroy the young bees that have not learned robbing of course, but put out robber-traps and catch and kill the old hardened sinners. No, sir, doctor; we will not retract the so-called libel.—Ed.]

NOTES FROM CANADA

BY R. F. HOLTERMANN.

QUALITY OF CANADIAN HONEY.

This season bee-keepers can rejoice in a very fine quality of honey which will increase very much the demand for the article. Butter is now worth an exceptionally high price, and the present outlook is very promising.

CAPPING HONEY.

Elmer Hutchinson in the *Bee-keepers' Review* for July, among other practical hints, mentions the honey lost in the cappings after draining them as much as possible. I, too, wrestled with that problem, and tried to melt these cappings, without the addition of water, by putting them in vessels and setting these in hot water, but the honey was practically unmarketable. For the last two years my solution has been to put the fairly well-drained cappings through a large solar wax-extractor. This, if proper attention is given, leaves a very marketable honey. The capping-melter, I hope, will be still better.

VENTILATORS IN SUPERS.

This season I have found quite a strong tendency to swarm; but having the old queen clipped, and with thorough care going through the brood-chambers, and destroying queen-cells every week, I have two chances at every embryo queen before a swarm can get away. I allowed two colonies to swarm, giving them a super each with a ventilator at the back. I have before stated that the bees do not use these ventilators as entrances unless young bees hatch in the supers. I now find that, if the ventilator is open when the swarm locates itself, bees may use the ventilator as a permanent entrance.

ELECTRICAL CONDITIONS.

W. Z. Hutchinson, in the July *Review*, writes, "The electrical condition of the atmosphere preceding a rainstorm is nearly always favorable to nectar secretion." No doubt many of us have noticed that, preceding a thunderstorm, the bees put in some of their best work. I have, however, often wondered whether it was not on account of the heat and moist condition of the atmosphere. With an almost saturated condition the plant throws but little moisture off, and the nectar rises in the nectar-glands of the blossoms. Such a condition may be obtained in a hot-house by means of heat and moisture, irrespective of any electrical condition; however, I may be wrong in my deductions. I can not say *conclusions*, for to my mind the matter is an open question.

HONEY-KNIVES.

Let me be bold enough to predict that the heated honey-knife will not supersede the cold. My son Ivar and a young man, Arthur

F. Hodgson, who have been with me for years, and are now engaged in bee-keeping, recently helped me to extract honey; and while at work they stated that there is no need of a bevel on a honey-knife. It simply requires a blade strong enough not to spring. Since that, I see Louis H. Scholl, page 423, *GLEANINGS*, wants "just a plain butcher-knife." I have done very little uncapping, but I think likely the heavy knives we have been using are unnecessary. The two young men I refer to prefer to lean the top end of the comb toward the side that handles the knife. They cut with an upward stroke, when the strip of capping hangs perpendicularly, making a bevel unnecessary. We can agree on upward or downward stroke only when those who whittle are no longer divided into two classes, viz., those who draw the knife toward them and those who hold the wood nearest them and cut from them.

BEE-ESCAPES.

Elmer Hutchinson, in the July number of the *Bee-keepers' Review*, gives his method of using bee-escapes. He writes: "We take the hive-cover off, give the bees a few hard puffs from the smoker, the combs of honey being all sealed over, and no open cells of honey for the bees to stick their bills in; half or more of the bees will at once rush down out of the super; when the one using the smoker pries the super loose, the other man lifts it up, and the one with the smoker slips an escape-board in place under the top super. We never put more than one super above an escape-board at a time."

So far as I know, the above method is about the best way of using the bee-escape; and there is no doubt that, to those who are in towns and cities, and to those who object to even an occasional sting, and to such as have limited experience in robbing time at least, the bee-escape is a boon. But it seems to me it is a great waste of time to such men as Hutchinson to put a bee-escape under a super such as he describes, and I could with the same help, almost, have the super of capped honey off the hive while he is getting the bee-escape board under. Then think of making another visit to the hive for every super on it, and think (or shall I say let us forget to think?) of warming the honey artificially and breathing the foul air from coal-oil stoves during extracting, tending to run a person down at a time when he is already under a good deal of physical strain! It just seems to me I should like to run a race with a man who uses bee-escapes. Mind, I am now discussing the advisability or inadvisability of men using bee-escapes who are not surrounded by dwelling-houses, who know the kinks to prevent robbing, even in robbing time, and who will not make thoughtless slips which may demoralize the whole apiary. During the time that bees would rob we recently extracted, in a building no better than a barn, 5600 lbs. in one day of nine hours, and gave no trouble to the people with whom the apiary was located.

BEE-KEEPING AMONG THE ROCKIES.

By WESLEY FOSTER, BOULDER, COL.

Cleome has been more plentiful this year than for several seasons, and the bees have secured quite a little honey from it.



THE HONEY CROP.

The second growth of alfalfa has not yielded nectar as was expected, and the crop in many districts will not be very satisfactory. Cool weather in July shut down work for a week or two, and the flow has not started to any great extent since. The grasshoppers have cut into the alfalfa-fields in many places; but the principal trouble is that there is nothing in the bloom. The weather has been favorable for several weeks, but with indifferent results. One super to the hive, I think, is a fair estimate for Northern Colorado. There are a few places that have done better than that, however.

Comb honey is in fair demand when it is remembered that this is a flush year for fruit. Comb honey brings \$2.75 to \$3.50 in a retail way.



PROPOLIS IN SUPERS.

I have often wondered why two bee-keepers in the same locality have such different appearing lots of honey. One will be white, and sections almost unspotted, while the other will be yellow and all varnished over with propolis. Keeping the hives and frames well scraped of propolis, and keeping this propolis out of the reach of the bees is one essential. Leaving the scrapings beside or in front of the hive is almost as bad as leaving them in the hive, for the bees will be found working on those little bits, carrying them back into the hives. The use of burlap over the sections is another cause of yellow finish in the sections, and any propolis-clogged burlap left in the apiary is worked on by the bees, and the propolis carried back to discolor the comb.



BAITS—WHERE SHOULD THEY BE IN THE SUPER?

A bait is to coax the bees to store honey in the super before the lower hive is so crowded that they are forced to move upward. The thing desired is to get the bees at work carrying the honey in the brood-nest upstairs. The baits placed in the center of the super are more quickly occupied by a good force of bees than those placed in the corners. If the bees start with a rush, the speed with which they carry in the honey will fill the super clear to the edges and corners before they think of finding a place for the honey more nearly over the brood. If the flow is good, bees are not in a mood to leave the corners unfinished. But the flow in the best of seasons is not good all the time; and if one has enough baits it is well to put one in each corner with one or two in the center.

Baits—that is, empty sections of comb from the previous year—should be used only the first of the season; for if coaxing is needed later with some hives, unfinished sections can be taken from others. In taking off honey one always has some that are not finished; and it is folly to have a super on till every cell clear to the corners is capped if the flow is at all slow. In a fast flow the bees will finish it complete, any way.

I would say, put what few baits are to be used in the center, unless you are convinced that they will be occupied just as quickly if put in the corners.



CHEAP SHIPPING-CASES WITHOUT GLASS.

I agree with Mr. Crane, page 467, that a shipping-case is to carry honey safely to the retailer; and I also think it is asking too much to require the bee-keeper to furnish a show-case with every two or three dollars' worth of honey.

The original incentive to put up comb honey in glass cases came, I suppose, from the fact that dealers were slow in stocking their stores with honey, for they said, and still say, "Oh! I have no place to put it, and it leaks, sticking every thing up, and the ants can not be kept out of it."

For this reason the producer had to put his honey in a case where it would be protected from dust, ants, etc., and be tight, so no drip would leak out. By doing this the retailer was willing to carry honey in stock, so now it has become a habit with most of us. If Mr. Crane can sell more honey without glass in his cases, I say "Good!" If I could sell mine as well I would not use glass either.

I know that a pyramid of comb honey on the counter, with attractive pricemarks, will outsell any glass-front case, single or double tier, of wood or corrugated board. Comb honey put up in transparent paper wrappers would sell almost as fast, for the honey would be quite visible. Pasteboard cartons do not go in this market at all. They might if people were accustomed to them.

A rough board case could be made of cheap lumber for 8 or 10 cts. that would carry the honey just as well as the planed wood cases. Large display labels could be pasted on the outside to make for attractiveness and advertise the goods. These cases would have to be crated for express or local freight shipments, but I think they would cost about half what the corrugated-paper cases do, and would look better and make a safer pile in the warehouse.

Say, Mr. Crane, if we can get comb honey to the retailer in good shape, and then persuade him to display it in a prominent place, we can dispense with glass-front cases; but till we can interest the grocer in the goods he will expect us to do all the advertising and display, and he will take the profit. I believe a case costing not over ten cents can be made that will carry honey as safely as any now in use. When a market is developed that will pay as well for the unglazed honey as for that with glass we shall be effecting a big saving for the producer.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

TAKING OFF COMB HONEY.

"Mr. Doolittle, I want to know if it is best to wait till the end of the season, and then take off all the comb honey at once, or take off all sections as soon as half a super of them, or such a matter, are sealed over."

"That depends very largely on the time you have at your disposal, Mr. Jones. If you have plenty of time, then it will undoubtedly pay you to take off the sections when fifteen or twenty in any super are finished, for by so doing such sections will not have their nice white cappings soiled in the least."

"But how shall I proceed?"

"You will want a lighted smoker and a wheelbarrow, and on the wheelbarrow a lot of sections which are filled with foundation ready to go in the place of those you will take off. Remove the cover over the sections and blow smoke down between the ranges of them till the bees have quite well gone below, when you can see about how many are finished. If from fifteen to twenty, unkey the super and take these out, putting those from your wheelbarrow in their places. If you do not see as many as ten or twelve which are finished, I should not bother to take any out. In this way you can go over all the hives. If the flow of nectar is good you can go over the yard again in a week, or at least that is about the way I did when I took off sections often so as to have all the combs nice and white."

"Is there no other way to do this?"

"Yes, you can use bee-escape boards, as at the end of the season, thus running all of the bees down below, off from all the sections whether finished or not."

"Then what will be done with the unfinished ones?"

"After you have the supers free from bees they are to be wheeled into the honey-room, where all are taken out, the finished and the unfinished, piling the finished ones away, while those not finished are put in the supers, filling each super full, so that they may be put on the hive again for finishing."

"But does this not cause a break of one or two days with the bees?"

"It is supposed that other supers will be on the hives, so that the bees can be at work in them while you are taking the others off and sorting them; but the bees seem to be broken up much more by this way of procedure than they do by the other way, so that when I take off any but full supers I generally adopt the plan first spoken of."

"Then you take off only full or nearly full supers, of late years?"

"That is what I have done mostly for the past twenty years; but during the twenty years before, I took off tons of honey the other way."

"With full supers how do you proceed?"

"There are various ways advocated by

different apiarists, such as smoking the most of the bees below, then carrying the supers to the honey-room, and by bee-escapes at the windows allowing the bees still in the supers to come out to the window and then crawl out through the escape. Others pile up these partially beeless supers in a pile in the apiary, with an empty super on top, over which is spread a cloth, on which the bees collect, when the cloth is turned a few times, thus ridding the sections of bees. If at a time when so much nectar is being gathered that the bees are not disposed to rob, the supers can be set near the entrance of the hive, or on top, immediately over the entrance, when the bees will all run out into the hive below. But after having tried all of these I prefer to use the escape-board."

"Tell me how to put it on so the bees will promptly go out of the supers."

"If at the height of the season, when more supers are to be put on to take the place of the full ones taken off, there is no better way than to lift the full super from the hive, arrange the others as you wish them, when the board, with the escape in place, is put on top of them, the full super over this, and, lastly, the cover over the whole. At times when the bees are inclined to rob, great care must be taken to see that there is no place or crack big enough to admit a bee, for there will be no bees in this full super to defend it after they begin to run out. Several have reported all the nice sections in a full super spoiled by some little hole found by robber bees where they went in and carried off all of the honey, or enough from each section so as to spoil their sale. But with this caution you should have no trouble about this."

"How long does it take for the bees to get out?"

"With the Porter bee-escape, most of them will go out in from four to eight hours; but at the home apiary I generally put on the escapes during the forenoon, and take off the supers free from bees the next morning before the bees begin to fly much."

"But suppose it is at the end of the season, and you want to take all of the supers off at once. How do you proceed then?"

"Take your smoker, a good stout chisel, and a wooden wedge, together with the escape-board. Set the board down by the hive, and the smoker on it. Now insert the point of the chisel between the supers and top of the hive, and pry down on the handle till you can get the point of the wedge in the crack, which should not be large enough to allow a bee to come out. Now blow some smoke through the crack, which will drive the bees away; raise the supers with the chisel; push the wedge in half way, and blow in more smoke. Now grasp the escape-board with one hand and the handhole in the lower super with the other, and raise the supers as far as possible and not have them slide off the hive, when the escape-board may be pushed in as far as it will go, and the supers lowered on to it. Now by the help of the chisel bring the supers squarely over the board and the board squarely over the hive."

GENERAL CORRESPONDENCE

THE USE AND ABUSE OF COMB FOUNDATION.

A Plea for Comb Honey with only a Minimum of Foundation.

BY F. GREINER.

After many years of producing comb honey, of reading how others are doing it, and how the grading is being done, giving due consideration to all—producer, dealer, and consumer—and also studying the grading-rules, I have come to the conclusion that we have been catering altogether too much to the demands of the dealer or the man who has it to sell. I observe that, if comb honey is to pass as “fancy,” the comb must be attached to all four sides of each section, and sealed to the wood. The better this is accomplished, the greater is the value of the product.

However, it is a fact that the *consumer* rarely demands such honey. I have placed gilt-edged comb honey in the hands of very exacting people at a fancy price—honey which was attached to the tops of the sections with only two little legs at the sides, none under the bottom, and yet the people who bought this honey were perfectly satisfied with it, although some of our producers of “fancy” comb honey would pronounce it only “very poor stuff.” The producers of comb honey who are catering to the wishes and demands of the sellers only, are filling the sections full of comb foundation, turning the sheets on with melted wax, sometimes on three sides of each section. Some are making use of split sections, which enable the user to get his foundation attached to three sides; but in order to prevent “buckling” they find it necessary to make use of brood foundation. When a consumer gets such honey he must dig it off from each side of the midrib; and how that can suit him, any producer can easily imagine. If these sections with the honey dug off and foundation still intact could be saved and gathered up for a repeated and perhaps indefinite use it would mean a great saving; but, of course, this is out of the question, and thus the only reasonable excuse for the method falls to the ground.

The consumer, for the purpose of eating, would call such a product “very poor stuff,” indeed as compared with what our forefathers produced in soap-boxes and the like; and the wonder is that those who put this most inferior article on the market have the cheek to speak about their practice in public. It would seem to me that their love for money has befogged their brains, for they want to reap where others have sown. Comb honey has as yet a good reputation, and only on the strength of this these people are obtaining a good price for their poor output, although the seller may pat them on their backs and

compliment them for their great (?) achievements, and buy their product before it is off the hive.

Comb honey, if it is expected to withstand shipping over our railroads, must of necessity be reasonably well-built out, and each comb must be attached to the sides of the section. This much I admit; but it is not necessary to meddle with the inside of the flakes to any extent. If we had a practicable method of obtaining naturally built new comb in sufficient quantities to start all our little boxes with we might get along without any section foundation.

Years ago our forefathers raised tons of comb honey without it, and we could do so again; but we of to-day find it handy now to use the artificial midrib. Indeed, we regard its use indispensable—at least when used as a small starter, and of the lightest-weight section foundation. All things considered, it is just as well to use the artificial starter, for even the natural new comb has its drawback. It has to be dipped into melted resin to fix it in place, and this leaves a hard substance at the place of detachment, which does not look nor is as well as a small foundation starter fastened in by the hot plate of a foundation-fastener.

MORE MONEY IN FULL SHEETS, BUT PRODUCT NOT AS GOOD.

I am sure I might have made a great deal more money had I used full sheets of comb foundation in my sections for the past 25 years or more. But as I did not wish to injure the reputation of comb honey I have refrained from doing so; for even the very lightest comb foundation leaves a hard distinguishable midrib. Many a purchaser may not even suspect that an artificial center is used in the section honey he has bought; but that does not alter the fact that the foundation does leave a hard tough substance, different from real virgin comb; and consumers who know about it can not possibly be satisfied with it. We are not, and a few others of whom I know.

A number of years ago I had been allured into using half-sheets in all my sections. That same year I happened to purchase 20 or 25 cases of comb honey of a neighboring beekeeper who had used only very small starters. Mrs. G. quickly observed this, and she suggested that I had better reserve for our own use a few cases of this honey we bought, selling all of our own product, which I did to our satisfaction when it came to eating the honey.

Really good comb honey can not be produced with full sheets or half-sheets of comb foundation, no matter what the dealers may have to say. It is very true that, on an average, the combs are not attached quite as solidly, nor sealed clear to the wood as uniformly, with small starters as with full sheets, but particularly so when split sections are used; but from the commercial standpoint there is no need of sections being filled brimful. Section honey ships very well if the boxes are reasonably well filled; the sealing clear to the wood is not only not necessary,

but is undesirable. Better by far have the row of cells bordering the wood unsealed, and free from honey. That a merchantable article of comb honey may be produced without full sheets of comb foundation my 30 years in producing comb honey proves. I believe I have had as few smashups as any other producer.

The comb-honey producer who uses only small starters will occasionally have a few cases containing honey very poorly attached to the wood. This seems unavoidable. Sometimes we miscalculate the duration of our honey-flow, and give too much room. It happens even when we make no mistake. But what of that? Such honey always finds willing buyers from near by, providing we offer it for what it is worth, selling by weight. We have never enough to go around. During the honey season my sections are nearly always well filled, and attached on all four sides. Such as are not attached to the bottom, but have the other three sides securely fastened, are placed topside down in the shipping-crate. Thus they carry with safety. As long as our honey is bought by the pound there is no injustice to the purchaser if the sections are of light weight. He pays only for what he gets; and if the honey itself is good there is no reason for fault-finding. The only loss, in fact, hits the shipper, inasmuch as the cost of the shipping-case is the same whether the 24 sections contained therein weigh 18 or 25 lbs.

UNSEALED CELLS NEXT TO THE WOOD.

As to the number of unsealed cells admissible, a word might be said. Cells containing honey should be sealed. This is greatly to be preferred. However, if there are a few such cells unsealed, and the honey is thick enough not to run out when turned on its side, there will be no harm in crating it. Even should there be a dozen such cells on a face, few consumers will object. Here the man that does the crating must use good judgment, as iron-clad rules can not be laid down.

THE QUESTION OF GRADING HONEY FOR EXHIBITION PURPOSES.

Now we are coming to an interesting point, of the real merit of comb honey as exhibited at fairs. Comb honey for exhibition purposes must be perfectly clean, the comb as well as the wood. This is conceded by all. The boxes must be well filled, which is also conceded. Further, they must be *uniformly* filled and sealed all around with no popholes anywhere, not even at the corners. All worker comb looks better than drone comb or worker and drone comb mixed. To attain this greatest perfection is possible only with full sheets of foundation, and the split-section man has the better of every other competitor, although his honey is the poorest product which it is possible to produce.

If the exhibitor were obliged to show just how his sections were fitted when given to the bees, and this be made a prominent feature of his exhibit, the judge would be in better condition to judge who deserves the

greatest credit. He ought to have the privilege of carving several sections of each exhibit to satisfy himself that no fraud is practiced. The man who produces a fine article of comb honey without comb foundation deserves greater credit than the one using full sheets, although in point of filling and in uniformity his exhibit may not be equal—in fact, can not be—to that of his competitor using full sheets. It is no great trick, and does not *per se* speak of mastery to produce perfect comb honey with full sheets of foundation. It is much more so to produce an article of which W. Z. Hutchinson says he would give five cents more a pound for it for his own use.

Naples, N. Y., Aug. 9.

ALSIKE POISONING.

Some New Appliances Tried in Extracted-Honey Production.

BY J. L. BYER.

After writing that note for GLEANINGS regarding the effect of alsike pasture on horses I thought that possibly it was unwise for me as a bee-keeper to have said any thing about the matter, as sometimes it does no good to ventilate even the truth too much. However, as a rule no harm can result from an honest discussion of any subject; and after reading what Mr. Case has to say on the matter I felt rather glad that I had brought up the subject for discussion, as what he says appeals to me very strongly as being the cause of the trouble. The only thing I can not understand is, why the trouble does not occur when the horses are pastured on red clover, as weeds would be just as apt to be there as in the alsike. As to the fact of the horses being poisoned while in the alsike pasture, there is not the slightest doubt, as the cases are comparatively common; but as to whether the trouble comes from the clover or the weeds, that is another question, and personally I shall be only too glad to find a scapegoat to carry the blame away from the alsike.

Only a few days after penning the note above referred to, I was called away on an inspection trip, and had to stay over night in Toronto; and while at breakfast in the hotel I happened to be seated near a farmer from Ontario County. In the course of conversation, the subject of bees and alsike clover came in for discussion, and my farmer friend casually remarked that he had left ten acres of alsike for seed, but that he had decided to pasture it off, as there was a lot of trefoil and other weeds among it.

"But," he said, "I had to take my horses off the alsike after they had been on only a week or so, as their noses, as well as their pasterns and fetlocks, all broke out in sores."

He further stated that he called the veterinary, and the trouble was pronounced "alsike poisoning." In fact, nearly all the veterinarians are calling the trouble by that name; i. e., where they are practicing in alsike sections. The trouble is little thought

of here any more as a very serious factor, for the simple reason that none of the farmers desire pasture of pure alsike. It is of little use as a second crop, as here it will not spring up after cutting as does its cousins red clover and alfalfa. The symptoms of the horses affected are just as described by Mr. McCormack on page 430—running sores, and swelling around the eyes; and, in the cases where the legs are affected, peeling off of skin with violent inflammation and other irritating symptoms. In conversation with the farmer mentioned I made it a point to ask as to the color of the horses, and I was surprised to hear him say that all the affected horses had white noses and white fetlocks. Sounds like a myth, but it is true just the same, and Mr. Case's diagnosis of the trouble seems like the most reasonable that I have yet heard. It is a good suggestion of his as well, as to the advisability of having an investigation made by competent authorities; but as the alsike is so well established here in Ontario it is doubtful if enough interest could be stirred up to get the project going.

A CAPPING-MELTER DARKENED THE HONEY SLIGHTLY.

We have had the capping-melter going, Mr. Editor—one made after the pattern you outlined. After the first day's using I was writing to the *Canadian Bee Journal* that evening, and I reported that the device was satisfactory in every way so far as we could see. However, after more trials we find that it does color the honey more or less, use it as carefully as we can. As you reported different results in using it at Mr. Fowls' last season, I can not see wherein lies our trouble. Any suggestions along the line that would enlighten us will be appreciated, for it certainly is a satisfaction to have the cappings all out of the road at the end of the day's work.

Possibly we did not give it a fair trial, though, as we did not use it as recommended, strictly speaking. Instead of having the cappings drop directly into the melter we preferred to use the uncapping-box, and then from time to time place the cappings in the melter, which was placed off to one side a bit. This was done because the heat from the gasoline-stove was noticeably felt when standing right over it. Of course the wax and honey did not have quite as good a chance to free themselves as quickly as would be the case if the cappings were dropped in more regularly. However, if we had to stand over the machine as pictured in GLEANINGS we would certainly not use it at all, as the heat is very much in evidence in our experience.

The coloring mentioned was not very pronounced; and, in fact, the first day we used the machine, continually drawing away the honey, we thought it was not discolored at all; but the next day after ceasing operations I left a bucket full of wax and honey till the following morning, and was then convinced otherwise. The honey was colored quite a lot; but the taste was not affected

noticeably, so I suspect that, if the honey were distributed with the rest right along, very little if any harm would be done. I might add that, in placing the cappings in the matter, an equal distribution was made as far as possible, yet there is no question but that even then the machine did not have as good a chance as if the cappings dropped in directly from the knife.

PETTIT STRAINER HAS SMALL CAPACITY.

We also tried the Pettit honey-strainer; and, while it is handy, yet with this year's excessively thick honey we find the honey will not go through the cheese-cloth in the strainer as quickly as it will when the cheese-cloth is suspended over the tank and tied on in old-time style.

REMOVING HONEY FROM HIVES.

That article of Mr. Crowther's, page 426, is worthy of the commendation you give it, Mr. Editor; but I was wondering, when I read about the set of men operating at a hive, what short cuts are best for us medium producers with three or four apiaries. This year in running three apiaries, all the help we have hired has been a man to turn the extractor six days—three days will yet be necessary, making nine in all. The writer works alone in the yard, and also helps inside a little occasionally; and with a man to turn the extractor, and my good wife with the knife, we manage to run off from 1800 to 2500 lbs. per day. I admit that, after having handled all the combs, both in taking off the hives and in giving them back empty, we sometimes feel a bit tired; but then, the work lasts for only a few days, and after that we do not put in ten hours every day. After being used to working alone at the hives, I think it would take a lot of schooling to get me used to help, and possibly I may be in the rut so deep that I shall never be able to get out, and will continue to plod along at the old gait.

Just a word about knives, hot or cold. Two years ago I persuaded Mrs. Byer (who does all the uncapping, and insists on doing so because she likes the work) to use the knife cold, as our small coal-oil stoves had been stored away for the time being. This year is another story, and the stoves are going again; in fact, we can not uncap without the heat at all without bruising the cells all up, no matter how sharp the knife. In all our experience we have never had such gummy honey; and after this experience we feel like saying, regarding the controversy as to hot or cold knives, that there is no set rule that can be laid down, as it is a matter all depending on the honey.

Mt. Joy, Ontario, Can.

[We believe, as our correspondent says, that the melter would have had a better chance if used in the regular way—that is, if the honey and cappings had dropped into the melter directly from the knife. The chances are that, since there was not a constant circulation, the part of the honey lodging next to the outside of the can became overheated before it could run out of

the gate. Moreover, with no cool honey dropping down into the melter it is probable that the contents reach a higher degree of temperature than the honey can stand.

If the heat from the melter is objectionable in the honey-house, it would be a good plan to wrap several layers of asbestos paper around the metal part so as to prevent radiation. In this way there would not be so much loss of heat into the room.

We should be glad to have reports from others who may have used strainers made like the one shown by Mr. Pettit, page 143, March 1. Perhaps a larger size would be necessary when the honey is very thick.—Ed.]

ALSIKE NOT POISONOUS IN WISCONSIN.

Valuable Comments on Current Discussion.

BY ELIAS FOX.

Alsike clover has been raised here for the past 25 years, and each year it shows more acreage. It is generally fed to horses, cows, calves, sheep, and stall-fed steers, with the best of results. I have raised it on a small scale for 15 years, half timothy and half alsike; and though I feed no other hay no one has better-looking horses than I. It is viney, and has a slim stem, and needs the support of the timothy to hold it up. The stem is but little coarser than timothy, and for that reason there is never a straw left or wasted in feeding.

If alsike poisons white-nosed horses in Canada and kills stock, they certainly have a different variety from ours; but I am of the opinion that the difference is in the veterinarians. Everybody here pastures it with impunity with all kinds of stock. I think myself that white-nosed horses are more susceptible to poison than others, as I have seen them with sore noses caused by poison ivy or poison oak, and I have no doubt this was the cause of the sore noses in Canada, and possibly the eating of it or some other poisonous weed was responsible for the deaths diagnosed as alsike poisoning. Give us more farmers to grow more alsike clover.

18,000 LBS. EXTRACTED IN A SEASON WITH A TWO-FRAME NOVICE.

R. V. Cox, page 363, June 15, says the two-frame Novice is all right for the purpose for which it was built—namely, for extracting combs in a very small yard or partly filled sections. Now, when the two-frame Novice was invented it was considered a very good machine for both small and large yards; and I want to say I have one that has been in use for 27 years, and last year I extracted 18,000 lbs. with it, and it was capped honey too, and some of it was extracted in October. It pulled pretty hard, but the honey had to come. This work was done by my own hands, with my bees in four different yards. I have extracted as

much as 1500 lbs. in a day with this machine, without assistance, and I should like to know how much better Mr. Cox has done with a four-frame reversible. This extractor with a new gear is now doing as good work as ever.

WHY BEES ARE CROSS JUST BEFORE A RAIN.

I don't think the editor quite hits the keynote relative to the enraged bees, page 420, July 15. It is generally known that bees with empty honey-sacs are more irritable and vicious, and this was just the condition in the case mentioned. Thousands and perhaps millions of bees were going to the fields with empty honey-sacs in anticipation of having them filled, and were driven back by the rain, with empty honey-sacs. They were disappointed, and this gave them just reason to be cross.

VIRGIN WAX WHITE.

Virgin wax, p. 422, July 15, in this locality is white. I know, as I had occasion one time to scoop up a double handful of the scales just as they were dropped from the bees, and melted them, making a cake of half a pound or more, and it was as white as any wax could be.

UNCAPPING HONEY DIFFERENT FROM CUTTING BEEFSTEAK.

Louis Scholl, p. 423, July 15, compares cutting beefsteak with uncapping honey. Now, I have run a butcher-shop, and I find the work entirely different.

Hillsboro, Wis., July 30.

[The little two-frame non-reversible extractor will do an immense amount of work; but it is our judgment, based on observation and from general reports, that where there is considerable extracting a large reversible machine will require considerably less labor and time on the part of the operator.

There is this fact to be considered, however, that a little light Novice takes up but very little room, can be set on to a wagon and carried to and from the out-apiaries, the extracting taking place at the yards themselves. Where a larger machine is used it is almost necessary to cart the combs home or to some central point, or have a machine at each yard.

We feel very sure that our correspondent is wrong in supposing that honey-dew from hickory, which has been gathered so largely in many sections of the country, is light-colored. Reports indicate that it is quite dark in color, with an ill flavor. In our own locality, especially in the vicinity of our south yard, we had a large number of hickories but no oaks. The only source of honey-dew (and large quantities of it were gathered at this yard) was from the gummy leaves of the hickory. The bees were fairly swarming on it; and everywhere the hives were filled with this black stuff.

While the color of honey-dew honey varies somewhat according to the locality, the gradation in our opinion is in proportion to the amount of real *white* honey that is mixed with it.

While there may be a certain exudation from hickory stumps, yet this substance is very different from that which we find on leaves of hickory here—an exudation from insects in the tops of the trees.—ED.]

THE RELATION OF ALSIKE TO SKIN SORES ON STOCK.

Alsike Not the Only Cause of Skin Disease, Hence should Not be Condemned.

BY GEO. A. SMITH.

Two years ago one of our horses was slightly affected with the so-called alsike poisoning. This one had a black nose, and showed only a slight roughening of the skin on the nose. Last year two colts with white noses pasturing on a newly seeded field of red clover were badly affected on the nose and face with the same trouble. This year the same two colts were pastured on a mixture of alsike and timothy, but have shown no signs of poisoning so far. At least 75 per cent of the growth on the ground is alsike, and this is its second year in the pasture.

My conclusion is that a rank growth of either alsike or red clover will, under certain conditions, produce a skin disease in horses, and that white skin is more apt to be affected than black.

The conditions necessary are, first, the presence of stiff stubble which will scratch the noses of stock; second, the clover must be wet, either from dew or rain; and, third, hot sunshine when the horses are feeding on the wet clover. I used common lubricating oil on the sores as a cure, with good results.

Prof. James Law, V. S., says, in the *Veterinary Advisor*, under the heading "Inflammation with Pustules," that horses suffer mainly at the root of the mane, on the neck, the rump, and on the lips and face, especially if white. He says:

It is often chargeable on some disorder of digestion, as the result of unwholesome food, or a sudden change of food, as from dry to green, or from one kind of pasture to another. Vetches affected with honey-dew have produced it in white horses, or in white spots of those of other colors; and buckwheat has affected white sheep, pigs, and goats, in the same way. It may, however, arise from habitual exposure to cold and wet, local irritation, as from rubbing, or from disorder of other internal organs. White pigs pastured on rape are often affected in the same way.

Again, under the heading "Congestion of the Skin," he says "this may coexist with all the different forms of inflammatory eruptions." It occurs . . . from the sun's rays in white-faced or white-limbed animals." Further on he says:

Cutaneous inflammation with nodular swellings, or urticaria, which are connected with sudden changes of food or weather. With some fever, there appear on different parts of the body swellings varying in size from a pea to a walnut, and often running together so as to form extensive patches which will close the nostrils, eyelids, or lips, and put a stop to feeding, and even threaten suffocation.

He advises the use of a purgative, followed by small doses of carbonate of soda internally, and the use of sugar-of-lead lotions to the affected parts as a cure.

You will see from the above extracts that, while alsike may be poisonous at times it is not the only cause of skin disease in horses, and so should not be condemned on that account. If you want to pasture clover, be sure to clip or roll the stubble so that it will not scratch the horses' noses, and then you can pasture it with little danger.

The only objection I have to alsike is that there is no aftermath, which is an objection of some force when a farmer has a lot of cattle to feed. I sow a mixture of three parts red to one of alsike, as a usual thing, and let it lie two years. We sow 6 lbs. of timothy and 8 of clover to the acre, and the alsike is quite thick the second year.

New Hamburg, Ont.

ALSIKE HERE TO STAY.

My experience with alsike, both for hay and pasture, has been very satisfactory. I have a field of four acres, seeded three years ago with red clover and alsike, half and half. I mowed it for hay the first year, but used it as pasture, mostly for sheep, last season and this. Red clover is not much in evidence after the first year. White clover came in unaided the second year, making a rich pasture for both bees and sheep. The sheep had access to a good pasture of blue grass in the field adjoining, but were always found in the alsike. I for one am an enthusiast on alsike, and most farmers in this section speak favorably of it as a hay-plant.

Many clover-fields were infested with dodder this year—a thing new in this section. Many farmers think this dodder came in the alsike seed, but this has not been proven, as dodder also has been found in red clover and alfalfa seed. Be that as it may, alsike, I believe, is here to stay, and is a boon to both bee-keeper and farmer. L. B. HUBER.

Lardis Valley, Pa.

SELLING HONEY TO EMPLOYEES OF FACTORIES; CANDIED HONEY ON BUTTER-TRAYS.

Last week I went to a factory where there were about forty men at work. I went first to the office and obtained permission to advertise honey among the hands at the close of the working hours. Before leaving the office I sold the proprietor one dollar's worth. When the engine stopped I was at the main entrance, handing out samples in waxed paper to each one as they passed out, and taking orders to be delivered the next day. Business was exceedingly lively for a few minutes. Orders came faster than I could write them down. Then on the day of delivery I took more orders, and told them to order by phone if I did not come around before they wanted more.

This plan of selling was quite satisfactory, the sales amounting to 180 lbs. for the week, mostly in 5-lb. lots on butter-trays. It was candied hard. The butter-tray is the most economical plan that I have ever tried, as the consumer does not have to pay the middle-man's profits, nor for a costly container to be thrown away when empty. And, further, the producer does not have to liquefy the honey and put it in small containers.

There are several plans of selling honey, and the locality must decide as to which is the most feasible. I have been selling honey in Clarinda for 32 years, and have always advocated the cheaper plan and larger quantities. I have a trade that takes all I can produce, and I often have to buy to supply the demand. I do not sell in the stores, as it goes too slow to suit me. Clarinda, Ia., March 3. J. L. STRONG.

UPPER ENTRANCES.

A Scheme for a Separate Alighting-board for the Supers; the Disinclination on the Part of Bees to Pass Through Excluders; an Easy Method of Superseding Queens.

BY B. WALKER.

I made a discovery last season, which, viewed in the light of past experience, will, in my estimation, prove of great importance to the producers of extracted honey. Possibly you will recall that I wrote you, several years ago, that I had been obliged to throw a late make of queen-excluding zinc on to the junk-heap, since it not only excluded the queen from the supers but the workers also, to a great extent.

Well, the discovery I refer to allows the use of the latest make of zinc without in the least hindering the work of the bees in the supers.

It is hardly necessary to explain the tendency that this plan has in the direction of swarm prevention, besides doing away entirely with the nuisance of drone brood, as well as worker brood in supers, and yet the scheme is so simple that it can be made use of by any one with very little expense.

It has been a source of satisfaction and profit this season. I know you will be glad to give this matter publicity.

The plan referred to is simply an alighting-board that obliges the mass of the working force to pass over the top excluder through an extra entrance provided above it to the supers by removing or leaving out the end to the rim of the excluder frame. My hives are commonly set up from the ground about five inches, and an alighting-board the width of the hive, and about 18 inches in length, placed at an angle of 45°, and of similar appearance, color, etc., to the one previously used with the hive is all that is required to accomplish the work.

I use a double-depth brood-nest where the strength of the colony and prolificness of the queen require it; and by putting the combs of unsealed and newly sealed brood above the excluder, and those that are nearly empty, or contain brood in advanced stages, together with those heavy with bee-bread below the excluder, alternating the stories about every two weeks, the swarming problem is virtually eliminated.

The chief gain to be secured by the use of this plan is in localities where but comparatively little pollen is in evidence at the time the flow is on; for instance, where alfalfa is a chief source of surplus; otherwise it is necessary to put the excluder over the lower story of the brood-nest, which at this time should contain (for obvious reasons) the chief part of the young brood as well as hatching brood and queen, when it will be necessary to change places with the two stories about every ten days in order to avoid crowding with pollen above the excluder; and, of course, this takes valuable time when the flow is on.



WALKER'S PLAN OF USING AN UPPER ENTRANCE IN CONNECTION WITH AN ALIGHTING-BOARD TO GET THE WORKING BEES DIRECTLY INTO THE SUPERS.

With two outyards (the one seven and the other three miles distant) with the honey-flow on, and work greatly behindhand, and only about a half supply of combs to meet such an emergency, I am having the time of my life. It keeps me busy till late each day seven days in the week. I am trying a high-wheeled auto, a Holsman, to save time in reaching outyards. This is my first experience in this direction, which promises some measure of relief.

My experience this season with the double-entrance plan has been comparatively slight, owing chiefly to the labor required to shift the two stories of the brood-nest at the proper time to prevent pollen clogging, without any help, and partly because I had faith that the new excluders would help in solving the problem with less labor. For this reason I am using but few of the old excluders in con-



WALKER'S PLAN OF USING AN UPPER ENTRANCE IN CONNECTION WITH AN ALIGHTING-BOARD TO GET THE WORKING-BEES DIRECTLY INTO THE SUPERS.

nection with the alighting-board scheme. I procured 200 of the new excluders, and have been using about 170 of them in the past two weeks, and I am glad to be able to report favorably. While, of course, the bees start quicker in the supers where no excluders are used, or where they are obliged to work largely over the old style, I find with good queens after a start is once made in the supers, with a good flow on, there is apparently no hindrance to rapid storing above the new excluders; and I will say if the outcome of the season bears out the opinion I have formed so far (many supers having been filled in the last few days), I shall have a lot of zinc excluders for sale very cheap.

There is one point that I think I forgot to emphasize as an advantage of no small importance in using my alighting-board scheme; and that is, the facility with which old queens can be superseded and a supply of young laying queens secured where a double brood-nest is used, and one of the alighting-boards arranged to carry the bees over the excluder top of the lower story.

It is also a comparatively easy matter to allow more or less of the working force if desired (on account of pollen being in evidence), to pass into the bottom section of the brood-nest by leaving off the wings at the sides of the alighting-board which will commonly be found necessary to carry the bees above at the outset, as they are inclined to pass either to one side or the other, otherwise, and sometimes (if the higher board is placed too high at the foot) to pass under the same.

Clyde, Ill., June 26.

[The scheme of plural entrances in connection with the use of perforated zinc, as here shown, was mentioned by Mr. E. F. Atwater on page 878 of our issue for July 15, last year. C. W. Dayton has been using the scheme, but how long we do not know. Others have referred to something similar.

Dayton's plan involved the use of only an auger-hole; but we should be inclined to think that the Walker idea of having full-width entrance to the super would be much better. His plan seems to be an improvement also, in that it provides a large alighting-board, obscuring to a great extent the old entrance, and at the proper angle for a bee in flight just as it alights. This we regard as quite an important factor in directing the flight of the incoming bees to the super direct instead of through the old entrance, the brood-nest, and the honey-board excluder.

We shall be pleased to have reports from others who may have tried the same thing or something similar.—ED.]

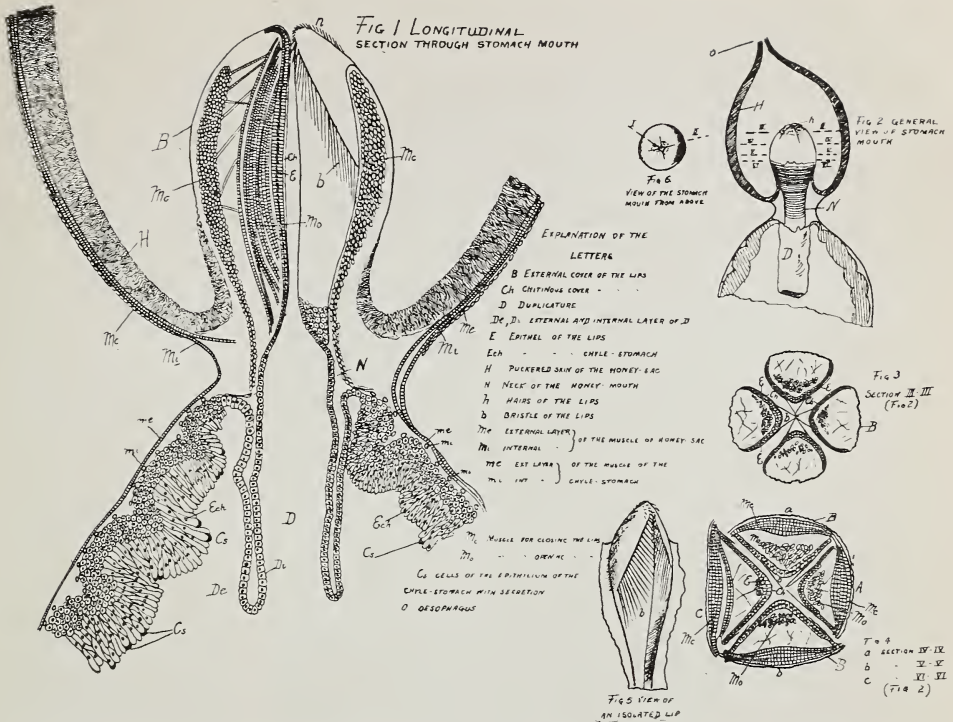
THE STOMACH OF THE HONEY-BEE.

How the Bees of a Swarm are Able to Subsist for a Week on Merely the Contents of their Honey-sacs.

BY DR. BRUENNICH.

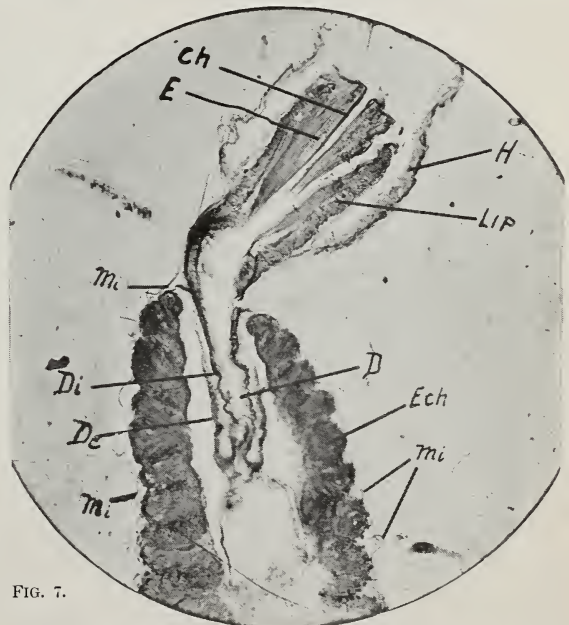
In our former articles we have considered the tongue, tracheas, etc., of the honey-bee; but the organ which most concerns the bee-keeper is the stomach. The honey-sac, a part of the stomach, takes up every drop of the crop; and every drop not only once, but many times, has to pass this sac before it is completely ripe. I believe, therefore, that every bee-keeper who has a real interest in apiculture will be glad of an opportunity for the further study of the anatomy and physiology of the stomach.

If the head of a dead bee is fixed with a



pin so that it turns upward, and then the tongue drawn up with tweezers, an orifice called the gullet will be seen, which takes the honey into the esophagus. This tube extends through the breast or thorax, and, with the artery, spinal marrow, and tracheas, passes through the slender connection which unites the breast with the abdomen, where it is suddenly enlarged into the honey-sac. One can easily see the complete intestine by grasping the last segment of the abdomen with tweezers and drawing it out very carefully and slowly, together with the sting. If the work is nicely done, the whole intestinal tube may be exposed little by little. At first the rectum is seen, which is sometimes empty and sometimes so swollen by the mass of refuse matter which it contains that it is larger than the honey-sac. After this comes a very slender thread, the small intestine (*jejunum*). This is followed by the chyle-stomach, which is considerably thicker than the small intestine, and girded with a mass of tracheas, and supplied with circular incisions. After the chyle-stomach is an exceedingly thin thread, the stomach-mouth, connecting the chyle-stomach

with the honey-sac. Like the rectum, the honey-sac differs considerably in size. When empty it is very small; but when full, as it is



LONGITUDINAL SECTION THROUGH THE STOMACH-MOUTH.
 This is further explained in Fig. 1-6.

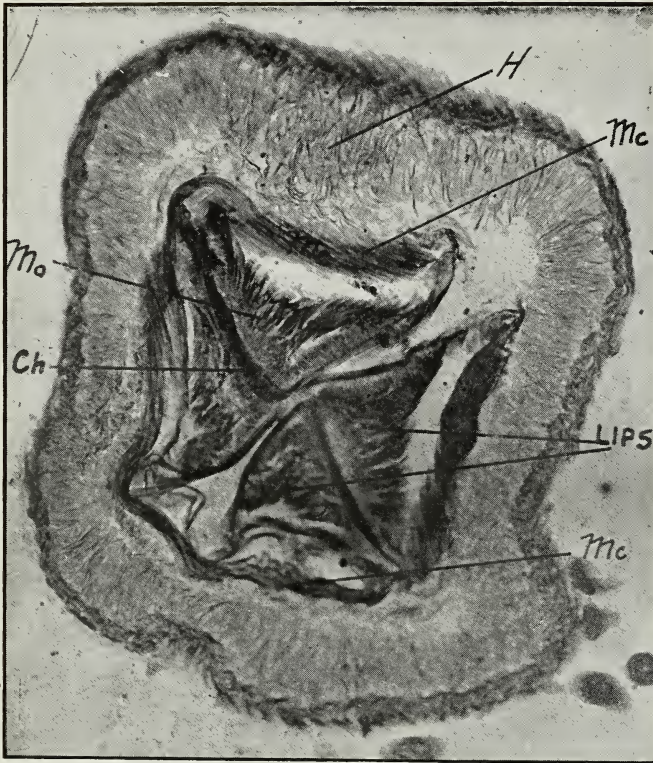


FIG. 8.—TRANSVERSE SECTION THROUGH THE STOMACH-MOUTH IN THE MIDST OF THE LIPS, THE HONEY-SAC BEING EMPTY.

in a robber coming out of a robbed colony, it may be larger than a hemp grain. When I catch a robber for observation I remove the head with a pair of scissors and then draw out the esophagus, which is a fine thread, stronger than the small intestine. If the stomach-mouth is quickly examined with a magnifying-glass, one may be astonished to see, through the transparent honey-sac, a tiny knob with four lips which are constantly opening and shutting themselves, making an interesting spectacle. These are the four stomach-lips, which will be described later.

We will first consider the honey-sac, which is the receptacle for even the smallest drop of honey which the bee gathers. For the main part, this honey-sac has three layers. The innermost layer is a very thin skin, generally folded together, making innumerable plies. This is necessary so that it will stretch to accommodate the largest vol-

ume of honey. When the honey-sac is entirely full this inner skin is plain and extended; but the less the sac contains, the higher and more numerous these folds or plies become. This is exactly the case with the rectum, the size of which, as mentioned before, also differs very greatly. On the outer side of this skin we find minute longitudinal fibers coming from the chyle-stomach passing the surface of the honey-sac in slings. It is these minute fibers, or fibrils, which hold the honey-sac and chyle-stomach together. It is clear that a contraction of these fibrils squeezes the honey-sac, and also brings the end of it a little closer (together with the stomachal mouth), to the esophagus. Outside this layer of longitudinal fibrils are circular fibrils which extend around the honey-sac like the hoops of a barrel. The contraction of these



FIG. 9.—THE SAME AS FIG. 8, BUT THE HONEY-SAC NOT QUITE EMPTY.

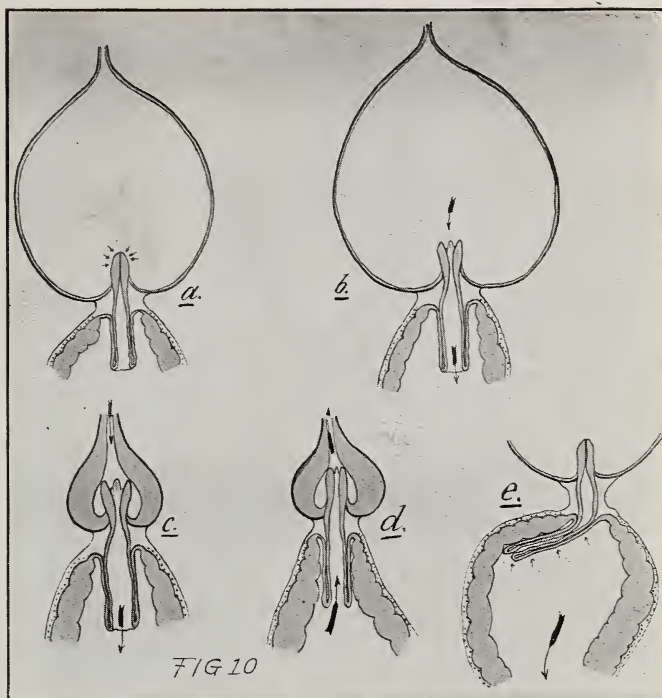
latter fibrils, together with the longitudinal ones, serves to squeeze out the last drop of honey either into the gullet or chyle-stomach.

At the base of the honey-sac is a beautiful organ, the stomach-mouth, which is not easy to describe, but which I hope can be understood with the help of Figs. 1—5. The organ consists of four lips (Fig. 5), which form through the whole length a chasm in the shape of a cross (Fig. 4). The free part of these lips is closed with a chitinous skin, thickest in the middle, under which there are the cylindrical epithelial cells, the function of which is to renew successively the chitinous skin. At the base this skin is exceedingly subtle, passing over to the inner coverings of the duplicature. Besides this, we find on each lip, beginning at the top and extending down to the outside, a brush made up of a series of strong bristles extending down. These bristles form a filter, which easily allows the

entering of pollen, but prohibits escape. In the space formed by the free sides of the lip there is the longitudinal muscle by whose contraction the lip is opened; and around the four lips there are the strong circular muscles, which easily close the entrance into this cruciform chasm. The outermost layer is a thin chitinous skin, closing the stomach-mouth, and continuing into the inner skin of the honey-sac. In the free sides of the interior of the lips there is a network of tracheas, and beyond them the blood-room, the function of which is to nourish the muscles and epithelial cells.

Fig. 3 is a transverse section in the upper fifth of the lips where they are still free. Fig. 4 shows the sections at different heights. Following the inner skin of the esophagus we find that it goes into the folded skin of the honey-sac, then returns and forms the outer covering of the four lips, at the bottom of which it turns again and forms the cross-shaped chasm. At the base the skin becomes exceedingly thin, but is provided with cubical cells and goes into the duplicature (Fig. 1, D, also Fig. 7, D).

The cell-layer of the duplicature descends into the chyle-stomach about $\frac{1}{8}$ of an inch, then turns up and joins closely to the descend-



THE GENERAL SCHEME OF THE STOMACH-MOUTH OF THE HONEY-BEE IN DIFFERENT SITUATIONS.

a, a field or swarm bee fasting.

b, the same eating honey.

c, a brood-bee eating pollen.

d, a brood-bee feeding the brood.

e, Valvular close from the chyle stomach against the honey-sac, when the first is contracting itself for removing its contents into the small intestine.

ing part (Fig. 1). At this point it ascends and bends around again, passing over rather abruptly into the glandular epithel (cell layer) of the chyle-stomach. The interior and exterior parts of the duplicature are joined together by fine threads. We will consider the function of these organs later on.

The most important organ of the whole intestine is the chyle-stomach. It is a cylindrical tube with walls that are considerably elastic. The inner covering consists of some layers of cells, the inmost ones being cylindrical, and the outmost ones cubical. A part of the cylindrical cells reach the glandular organ whose secretion serves for the digestion of the food. The ferments of the chyle-stomach, so far as we know, have not yet been examined for the purpose of determining their chemical and physical characteristics. A series of the epithelial cells absorb the assimilated food and remove it to the blood, which washes the chyle-stomach.

On the outside of the epithelial layer we find a great number of circular muscles, which, by their contraction, compress the contents and move them against the small intestine or else through the lips outward, as when the bee is feeding a larva. Outside of the circular muscles there are longitudinal

muscles which partly continue (Fig. 1) into the longitudinal muscles of the honey-sac.

The function of the stomach-mouth is to separate the filled honey-sac from the chyle-stomach, but still permit voluntarily a passageway between the two. The stomach-mouth also enables the chyle-stomach to express directly (through the filter made by the lip bristles) its contents into the esophagus, and from there into the gullet. (This point is not yet absolutely proven.)

A bee coming from the field, or a swarm bee, closes hermetically its honey-sac from the chyle-stomach. This action is quite automatic, and without effort of any muscle. The pressure in the inner room of the honey-filter forces the four lips together like the valves of a pump, the upper part of the lips being somewhat flexible (Fig. 10, *a*). Thus, without effort by the bee, no drop of honey can pass into the chyle-stomach. If the swarm bee is hungry, it contracts the longitudinal muscles of the lips, and thus opens the mouth, when a contraction of the muscles of the honey-sac forces a little drop of honey into the chyle-stomach, furnishing new fuel to the small engine (Fig. 10, *b*).

A young brood bee, which desires to eat some pollen for the larvæ, allows these lips to approach the end of the esophagus (the honey-sac being probably empty); opens them, and expels the chewed pollen directly into the chyle-stomach (Fig. 10, *c*). Then when this pollen is well digested into chyle the brood bee does the same as before, only (by the compression of the chyle-stomach) she squeezes the contents directly into the esophagus and gullet (Fig. 10, *d*). Here the bristles of the lips, forming a close net, keep back the undigested portions of pollen. When the bee is nourishing a larger drone larva, it probably opens the mouth wider, because it is known that, in the food for the drone larvæ, parts of undigested pollen are found, which is never the case in the food for young workers or queens.

According to Schiemenz, the duplicature plays the role of a valve. When a bee squeezes out the contents of the chyle-stomach into the small intestine, the mouth must be entirely shut. It would require a great effort of the shutting muscle, because it is easy to understand that the passage from below is more easily forced than the passage from above, on account of the conical form of the chasm; but if the duplicature lays itself slantwise on the orifice, the latter is shut automatically without great effort of the muscle, Fig. 10, *e*.

I must remark that Schiemenz admits that the glands of the head produce the jelly, and not the chyle-stomach—a theory which I do not approve. However, this question by experiment is very difficult to determine. For my part I think that these glands furnish the digested ferments to the food which is passing the gullet.

We see that the stomachal apparatus of the honey-bee is an intricate one, and we can not but marvel with reverent homage at the wonderful work of the Creator.

Ottenbach, Zurich, Switzerland.

THE HORNET.

BY WILL WEBB TUTTLE.

Mr. Beeman, with your quiet, easy-going, gentle ways.
Out among the mild Italians in the balmy summer days,

There's a nucleus of hornets by my garden, in a tree,
With more ginger to the square inch than your whole ap'ary.

You may smile when we affirm the black bee's business end is hot;

If you doubt it, wag your thumb and let that hornet have a shot;

For 'tis certain, when this warrior sees you warming up to him

He will send your astral body spinning round inside your skin.

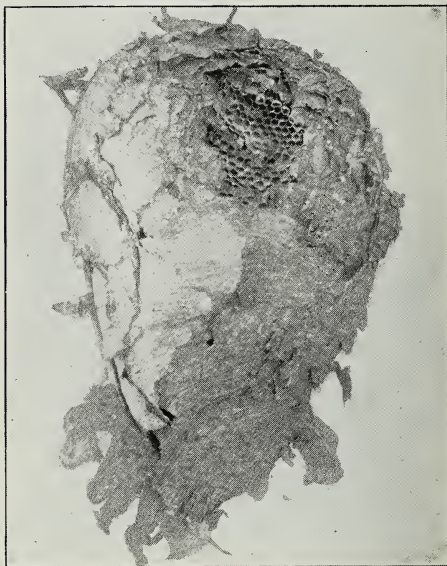
For no bee-man's hide is proof against his mellifica dent,

Though it bear the apis odor, and emit the true hive scent;

And your "large, slow gestures," Mæterlinck, will fail you like the rest,

For there's no cell-grafting doing when one strikes a hornet's nest.

Muncie, Ind.



A HORNET'S NEST.

"For there's no cell-grafting doing,
When one strikes a hornet's nest."

IS THE QUEEN RESPONSIBLE FOR GREASY CAPPINGS?

BY THE NEW MEXICO CHAP.

[On page 362 of issue for June 15, Mr. Wm. M. Whitney took the ground that we were wrongly blaming some of our very best queens because their bees happened to produce greasy sections; that the trouble was not due to the strain, but rather to the condition of "excessive heat and lack of ventilation." Since that time we have received several letters arguing the question pro and con.—ED.]

Mr. W. M. Whitney, page 362, June 15, says that the queen has nothing to do with the greasy capped honey we get from some colonies of bees. He asked why it was that he got fine white cappings, then greasy, and

then white cappings again from the same colony. Perhaps variation of honey-flow might have explained in his particular case; but from careful observation I conclude that the strain or breed of bees has almost all to do with it. In the spring and early summer of 1907 about 300 Holy Land queens were shipped into this valley, and introduced in five different yards. Since then we have come to own all these bees; and one of the most noticeable things about them is their greasy capped honey. So different was the honey they made and are still making that one can go into these yards where they were introduced here and there among the Italians, and by raising the covers and looking at the cappings of the honey tell which hives have the Holy Land queens. Now, considering that there were some 300 of these queens scattered through about 1500 colonies, and that most of the comb honey we took from them was so greasy in appearance that we had to crate it separately and sell it at a much reduced price, while the Italians at the same time and in the same yards made thousands of pounds of the finest white honey, we must conclude that the strain or breed of bees had something to do with the greasy cappings. I wish that Mr. Whitney would carry his experiment a little further by sending for a good Holy Land queen, and then, after giving her plenty of room and ventilation, report. I should be much interested, for I have condemned the Holy Land breed more on account of their greasy capped honey than for any thing else. I may have made a mistake, but I think not. I recall two or three hives which I have watched so closely on this point that I am sure that, in the last two seasons, they have not capped a single section or frame white, although I have sometimes had them working in as many as three full-depth extracting-supers at once. Some of these Holy Land bees are in the shade all day, and some in the sun. Some of them have good tight covers on the hives, and others an old shade-board thrown over them with cracks wide enough to admit one's finger, but I never noticed a case where the bees were evidently of the best Holy Land stock, and capped their honey white.

Mesilla Park, N. M.

WATER-SOAKED AS WELL AS WHITE CAPPINGS MADE BY BEES OF THE SAME COLONY.

Last season was very wet throughout the latter part of May and all of June, but I got a big crop of honey. The heavy flow of "white" and light-colored honey ceased suddenly the latter part of July, and there was nothing doing for a short time, about a week or ten days, when the bees commenced bringing in freely of a darkish honey, presumably from smartweed and heartsease. I had left all the supers on after removing the filled sections, as I then had no place to store them, and was hoping for a late flow of honey. It came, and the bees commenced just where they had left off; but what a change! The June and July honey was capped with

coverings as white as snow, while the combs were plump; but the darker honey was as "watery" or "greasy" as any I ever saw, the capping being in direct contact with the honey at every point, while the combs were fully $\frac{1}{4}$ inch or more thinner than the white combs to which they were built.

There had been no time for a change of queens by supersedure or swarming, nor a new generation of bees—that is, entire; and I am convinced that this phenomenon of greasy or watery capping is due, not to a lazy or hustling queen (bees), but to some condition of supply, temperature, ventilation, or perhaps to the density or flavor of the honey itself.

Again, in a section-holder I have before me, taken off yesterday, are four sections. One is capped as white as a sheet of paper, while the one beside it shows "watery" cappings. Another of the four is capped largely white; but in the midst of the snow are cells with cappings as translucent as paraffine paper. In the same super were other sections showing the peculiarity in a very marked degree.

Lastly, the shallow "bait" frame is capped snow-white save for a row of holes next to the wood (lower bar) which are capped fairly transparent.

I have no doubt you have seen the same thing many times, and I wonder at the discussion now that I have looked into it.

DR. A. F. BONNEY.

Buck Grove, Iowa, June 22.

CAPPINGS "GREASY" BECAUSE BEES CLUSTER TOO CLOSELY ON THEM, PUSHING THEM DOWN TO THE HONEY.

I think Mr. Whitney is nearly correct in his conclusions, p. 362. Some twenty years ago, when producing honey in sections I saw many cases of it, and always in the strong colonies of *Italians*. The first proof I found bearing on the subject was when the combs in some hives melted down, the combs near the melted ones presented that same watery appearance. Second, I found that, by raising the front end of the hive half an inch off the bottom, and giving a little ventilation and shade at the top I seldom found any of it. The queen is somewhat indirectly responsible for it, in my opinion, because the bees of some colonies cluster closer on the combs than others. The black bees will usually run out of the hive and cluster on the outside before the capping is soft enough to be crushed down upon the honey by them.

Mauston, Wis., July 1.

F. WILCOX.

[Apparently there are two sides to this question. It would seem that there are some conditions under which a strain of bees will produce greasy sections and other conditions when they will produce combs with snow-white cappings. It also seems to be equally true that there are some strains that are given to producing watery-looking honey. The testimony of the New Mexico Chap appears to support that position.—ED.]

SIX HUNDRED COLONIES SHIPPED BY RAIL IN HOT WEATHER.

**Although Many of the Combs were New,
Few were Broken; Queens Reared
on the Journey.**

BY WARREN C. DYER.

In an issue of the April number of GLEANINGS you asked for a communication from any one who had had experience in shipping bees by rail. As we have just returned from Arkansas with 600 colonies of bees, we will give you the benefit of our experience.

We made screens of $1\frac{3}{8} \times 1\frac{1}{2}$ -inch lumber, the size of the hive. The wire was then placed on these frames, and half-inch strips nailed on each side, and quarter-inch strips at each end. We placed one on the top and bottom of each hive with four six-penny nails to each screen. We also bored a three-quarter-inch hole in the end of each hive. This work was finished June 4. That night we put corks in the holes bored in the ends of the hive, loaded them into lumber wagons (no springs), sent them to the station four miles from the yard, and loaded them in cattle-cars.

In the car we made three rows on each side with an aisle in the center, and another aisle across the car at the door.

We had no hand-hold cleats on the hives, and this fact allowed us to pack them so they could not move a particle with the bumping of the cars. We finished loading June 5 at 2 o'clock P. M., and pulled out of Boughton, Ark., at 6 that evening.

The weather on the 5th, 6th, and 7th was extremely warm, and there was no breeze except what the train made. We gave the bees water twice and sometimes three times a day. On the 6th we were laid out about five hours in the heat of the day at Ozark, Ark., on account of a wreck ahead of us; and as it was very hot and clear, with no air stirring, we were fearful that we might lose some of the colonies, and what little loss we did have occurred at that point.

We arrived at Wichita, Kansas, at about 8 P. M. on the 7th, and that night it stormed pretty hard. The next day was cloudy and cool, and not extremely warm the rest of the way. We arrived at Boulder, Col., at 2 P. M. on the 10th; unloaded that afternoon, hauling the hives in wagons with no springs about three-fourths of a mile; turned the bees loose that evening, having been closed up for exactly six days. Our total loss consisted of three colonies that smothered. We tried to divide up all large stocks into two boxes, but these three must have been missed, and I think they died at Ozark, as, the next day after we were laid out, there was a smell of dead bees inside the car.

I was surprised at one thing, and that is, I could not see that the brood was hurt a particle in the shipping, and the colonies that we had to divide up on account of being so heavy in brood raised queens and took care of these cells on the train. Five days after

we arrived I saw twelve queens hatched from one colony in less than twenty minutes, and I could not see but they were perfect queens. Nearly every hive that had no queen raised queen-cells, and we saw none that were not hatched or had live queens in the cells. We did not leave over ten pounds of honey in any one hive. Half of the colonies were shipped on new combs or on full sheets of medium brood foundation in wired frames.

Our breakage in the 600 colonies did not amount to one dozen combs, and none of the foundation was hurt a particle. In my opinion, however, combs built in Arkansas are much heavier and tougher than those built in Colorado, and will stand much harder usage.

Boulder, Colorado, June 22.

HONEY-DEW HONEY.

**The Requirements of the Pure-food Law
in Regard to it.**

BY W. A. SELSER.

[A subscriber recently asked us several questions in regard to the attitude of the law concerning the sale of honey-dew honey; and knowing Mr. Selser to be an authority on the subject we referred the letter to him. His reply will be of interest also to others who may have felt in doubt as to what they could do with the honey which their bees gathered.—ED.]

It would be ruinous for a bee-keeper to put up "honey-dew honey" and sell it for honey. You will, no doubt, understand the matter more clearly when I tell you that the pure-food law was drafted, not so much to stop adulteration as it was to state honest facts to the consumer. In other words, we could say that the pure-food law means simply honest sales. A bee-keeper has a perfect right to put all the glucose he wants to in his honey if he so desires; but when he puts it in any receptacle and offers it for sale, he must state on the package just what he has put in it. Now, that is fair, is it not? It is the most common-sense bill I have ever heard passed by Congress. Dr. Wiley had a personal talk with the writer shortly after this bill was passed, and on this very subject of honey-dew. Dr. Wiley stated that the law did not want the poor bee-keeper to stop selling all the honey-dew his bees gathered; but he positively must state on the article offered for sale, "Honey-dew Honey."

You also may know that this applies to any honey gathered from various sources; viz., if you put white-clover honey in a bottle, and so brand it, it must be strictly white-clover honey, and nothing else, etc. But in the case of honey-dew it is really not honey at all. It is simply "bug juice." As you may know, it is gathered from a secretion of the aphid, a little leaf-insect, and is largely dextrose, while honey is largely levulose. Nectar, as it is gathered by the bees as it comes in its original state from the plant, is largely levulose. So you can readily see that honey-dew is absolutely not honey at all. We have

found this year that quite a lot of honey-dew gathered has been almost pure honey-dew; but the question has been, where honey-dew is mixed in with other honey, how much, or what proportion, could be sold as honey without violating the pure-food law? By careful experimenting it has been found that any thing over twenty per cent crosses the danger-line. If you hold up your frames before putting them in the extractor, and find there is not more than one-fifth of it dark, I think it is safe, if you are a good judge, to sell this without branding it "honey-dew." But when bee-keepers are doubtful, as the consequences are so great, it would be advisable to send a sample to a chemist for his determination.

Philadelphia, Pa.

CARPENTRY FOR BEE-KEEPERS.

Hive-construction.

BY F. DUNDAS TODD.

Having decided to make some two dozen hives of the divisible type, my next step was to learn their dimensions. I had models in plenty in my collection—twelve bodies in all, ranging from Gallups of about one foot cube, inside measurements, to Jumbos, but so varied in size and style that it was practically impossible to combine any two of them. Some were butt-jointed, some checked, some mitered. To make the variety more complete, a few were flat-edged like all modern hives; some were rebated, while others had the beveled edge of the Simplicity hive. Careful examination indicated that not one was of Langstroth standard dimensions, but at the same time I did not know for a certainty what the standard dimensions were. For several days I searched my books from end to end; but it is simply amazing how indifferent the average writer is to such details, yet they are exceedingly essential. Here is where Dr. Miller shines like a brilliant sun among a host of twinkling stars, for he is exceedingly methodical in giving specifications of every bit of apparatus he describes. Deprived of his "Forty Years among the Bees" I feel I would at this stage have been helpless; for whether I was studying at my desk or working at the bench his volume was in constant use.

At the end of the notebook are two exceedingly valuable pages that I should hate to lose, for in them is a record of the dimensions and specifications of every thing that goes to the making of a hive such as I want. From these two pages I will draw liberally as these articles develop.

The most important measurements to know about a hive-body are the inside dimensions, for these are constant; the outside measurements will depend upon the thickness of the lumber available. Root's hives are made of $\frac{3}{8}$ -inch lumber; but in this part of the world $\frac{3}{4}$ is the standard thickness. So, inside measurements being known, one can easily

make the necessary calculations for the lumber-bill.

The standard Langstroth hive, eight-frame size, is $18\frac{1}{4}$ inches long inside, and $12\frac{1}{2}$ inches wide; the ten-frame size has an inside width of $14\frac{1}{4}$ inches. When made of $\frac{3}{8}$ -inch lumber the outside dimensions are $13\frac{7}{8}$ by 20 inches for the eight-frame size, and 16 by 20 for the ten-frame. In my case, using $\frac{3}{4}$ -inch wood a hive will be $19\frac{3}{4}$ inches long, while the width will be $13\frac{5}{8}$ inches for 8 frames, and $15\frac{3}{4}$ for 10 frames.

But before we order our bill of lumber it is necessary to learn the size of the rabbet we must have on the end pieces, for we are to use hanging frames. Now, the top-bar of a Root frame is $18\frac{3}{4}$ inches long; that is, they are half an inch longer than the inside length of the hive; and, besides, we must allow extra space for ease in manipulation—at least $\frac{3}{4}$ of an inch in all. If we divide this $\frac{3}{4}$ inch equally between both ends of the hive (and we must), then the rabbet on each piece will be $\frac{3}{8}$ inch wide. This is what I use on $\frac{3}{4}$ -in. wood; but Root uses $\frac{1}{16}$ on the $\frac{3}{8}$ -inch lumber, and I think it is better.

How many of my readers could, offhand, tell the exact location of the bee-space, whether at top or bottom, in a Root hive? I could not; but I simply had to know, for I intended to use Root's goods, and I was quite befogged until I remembered that, in my furniture pile in the barn, there lay a Danzenbaker hive. Examination showed the bee-space to be above the frames. But it is not always there, for in the hives in my collection it is sometimes at the bottom, and in bee literature I find diagrams showing both ways.

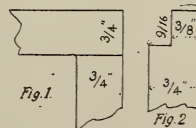
Now, the depth of the rabbet depends partly on the location of the space and partly on the thickness of the end of the top-bar. The Root shallow frame for the divisible hive has a top-bar $\frac{3}{8}$ inch thick, but the lugs are thinned down to $\frac{5}{16}$. Allowing $\frac{1}{4}$ inch for a bee-space at the top, the total depth of the rabbet will be, therefore, $\frac{9}{16}$, which is that adopted in the Root hive. Now, as the depth of the divisible hive in Root's catalog is given as $5\frac{5}{8}$ inches, and the frames are $5\frac{3}{8}$ inches, we see that the bottom of the frames will be flush with the bottom of the hives. I made my first hives $5\frac{5}{8}$ inches deep, and found them a perfect nuisance; so I increased to $5\frac{7}{8}$. Then came along a consignment from Root, and I found they also were $5\frac{5}{8}$, so the catalog is at fault.

Since we are in possession of exact data of

hive-construction, we are now in position to make out a bill of specifications for the lumber-mill. In my first effort I was content to use ordinary butt joints, thus, Fig. 1.

Here are the specifications for one eight-frame divisible body.

Two pieces $\frac{3}{4} \times 5\frac{7}{8} \times 19\frac{3}{4}$;
 " " $\frac{3}{4} \times 5\frac{7}{8} \times 13\frac{5}{8}$,



with rabbet on one long edge of end pieces, $\frac{3}{8}$ wide and $\frac{9}{16}$ deep, Fig. 2.

For $\frac{7}{8}$ -in. lumber the bill would read:

Two pieces $\frac{7}{8} \times 5\frac{7}{8} \times 20$.

" " $\frac{7}{8} \times 5\frac{7}{8} \times 12\frac{1}{2}$;

and in the drawing one must substitute $\frac{7}{8}$ for $\frac{3}{4}$; and instead of $\frac{3}{8}$ there would be written $\frac{9}{16}$.

Then you will need two rabbet-tins $\frac{1}{2}$ inch wide and 12 long.

It is very important that this box be exactly square at the corners, and to ensure this I nail the parts together while they are around a box whose outside measurements are the same as the inside dimensions of the hive, $12\frac{1}{8} \times 18\frac{1}{4}$. The one I use is made of $\frac{3}{4}$ -inch lumber, and is a trifle less than four inches deep. The specifications are:

Two pieces $\frac{3}{4} \times 4 \times 18\frac{1}{4}$;

" " $\frac{3}{4} \times 4 \times 10\frac{3}{8}$.

To keep the box in exact shape, and at the same time act as a guide while the hives are being nailed together, one of the open ends is closed with the same weight of lumber (bottomed, in fact), but with this difference—the bottom projects exactly $\frac{3}{4}$ inch all round, so that when the lumber of the hive is placed in position every thing is flush. These bottom pieces will necessarily be $19\frac{3}{4}$ inches long, and have a total width of $13\frac{3}{8}$ inches.

Now, it is important that this jig-box be exactly square at the corners; and the easiest way to secure accuracy is by an arrangement of cleats on the bench. Begin by drawing pencil-lines on the bench, making an oblong $12\frac{1}{8} \times 18\frac{1}{4}$. Use an ordinary packing-box for drawing these lines, first having tested its squareness by measuring the distances from the diagonal corners. If both are the same length, the box is true. Your lines drawn, nail cleats on three sides, not necessarily the full length.

Now, exactly as you can, put the sides of the box together, using only two $1\frac{1}{2}$ -inch finishing nails at each corner. You are not trying to get rigidity yet; in fact, you want flexibility. This done, slip the box between the cleats on the bench and add the fourth, and your box will be exactly square at the corners.

One of the bottom-boards should have a pencil-line drawn on three sides, $\frac{3}{4}$ inch from the edge. Adjust these lines to the edges of the box, and nail with $2\frac{1}{2}$ -inch nails. Add the remainder of the bottom pieces, remove the box from the cleats and nail the corners, and you are ready to

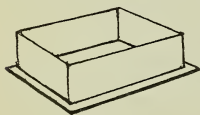


FIG. 3.

make a first-class job of your first hive. Here is how the jig-box will look—Fig. 3.

It is just fun to nail hives together around this box, provided it is of exact shape. Should you, however, in cutting out the pieces, get the end ones a trifle short or a trifle off square, do not worry, but pack them with strips of brown paper until you get the exact dimensions.

Ordinary nails, I find, even with fir, do not hold the hives true, and so I would advise that cement-coated nails at least $2\frac{3}{8}$ inches long be used.

Add the rabbet tins to protect the edges of the rabbet, and your hive is ready for painting.

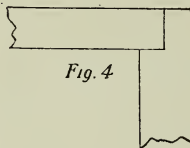


Fig. 4

For a stronger construction I would recommend a check joint as shown in the drawing, Fig. 4.

Then our specifications

will read:

Two pieces $\frac{3}{4} \times 5\frac{7}{8} \times 19$;

" " $\frac{3}{4} \times 5\frac{7}{8} \times 13\frac{3}{8}$,

the end pieces being rabbeted on one long side $\frac{3}{8}$ inch wide and $\frac{9}{16}$ deep, on both short sides $\frac{1}{8}$ inch wide, and $\frac{3}{8}$ inch deep.

Victoria, B. C., Canada.

[We do not give dimensions of any of the standard hives in our text-books, for the simple reason that the great majority of people can not work by rule and figure. In our A. B. C. and X. Y. Z. of Bee Culture, under the head of "Hive-making," we advise every one who contemplates building his own hives to send to some factory and get a sample of such a hive as he proposes building. With the several parts of the hive before him he can scarcely go wrong, for all he has to do is to make duplicates of each part of the hive.]

In the older editions of our work we gave dimensions; but we found that those who attempted to follow them would make mistakes. They would get the rabbets in the hive in the wrong place too deep or not deep enough; whereas if they had had exact patterns all this confusion would have been avoided. In our later editions we gave the dimensions of standard frames. When one takes into consideration the $\frac{1}{4}$ -inch beespace, and adds double this space to the length and depth of the frame he will get the corresponding inside measurements of the hive. The other dimensions will be determined by the number of frames used. Figuring that the frames should be spaced $1\frac{3}{8}$ inches from center to center, with a beespace of $\frac{1}{4}$ inch on each outside frame, we get the inside width of the hive. But we would not advise one to make hives on this way of figuring. He should, rather, work from a pattern.—ED.]

BEE-KEEPING IN CUBA.

Cattle-Raising is Responsible for the Poorer Bee Pasturage.

BY FRANK REIMAN.

I believe there is no other country in the world where the output of honey has decreased as it has in Cuba. When the Spaniards and Cubans alike were depredating Cuba and eating up the cattle, it was a glorious time for the bee-keeper; but now Cuba is being again well stocked with cattle, and the

best honey-plant, campanilla, or bellflower (resembling the white morning-glory of the United States), is being torn up by the cattle or cut down by the machete of the Cuban because the cattle do not eat it. In Manzanillo the exports have declined from 5000 barrels of 50 gallons each to 2000 barrels last year. This year, I am confident, the exports will not reach 1000 barrels.

The destruction of the timber has caused great drouth in the summer or wet season, and nearly all the streams go dry. Three-fourths of Cuba is now cleared, and the remainder is going very fast. Where there are no woods there is not enough honey to keep the bees living, and they will starve. All the large apiaries in Havana province are dead now, and Pinar del Rio is fast diminishing. This province, Oriente, has still plenty of timber, and by locating along a stream where the bees can always get water we can not help doing well.

I have three apiaries, and all are located on the Cauto River, where the tide rises and falls 2½ feet, so that it can never go dry. I move all the honey and supplies by river, as the roads are usually bad.

There are still plenty of good locations, but it is necessary to buy all the ground within reach of the bees, and so control the territory. I have over 950 hives at present in three apiaries, one of the two outyards being a mile west and the other a mile south. The home yard contains 350 hives; and 200 yards from it a neighbor has 200 hives more, so there are now over 1200 hives of bees inside of two miles. I find that the two outyards do better than the home yard—in fact, at the home yard I have to feed, while at the outyards, only a mile away, the bees are making surplus honey.

I have kept bees 27 years, and have never known them to work profitably when they had to fly over a mile for the honey. The largest crop of honey I ever raised was in Delaware, on a drained marsh that was all in heartsease and butterweed. My bees on the marsh, right among the flowers, made five times as much honey as other bees that were 1½ miles from the marsh, which made hardly any surplus.

I have extracted, from March 1 to June 1, 2500 gallons of honey and 1500 lbs. of yellow wax. The honey, until Oct. 15, is dark; after that it is white from the bellflower. When the white honey begins I expect to change from extracted to comb honey, as my frames are only six inches deep and twenty long. I will make wide frames that take 4×5 sections, and use them in the same super. I formerly used T tins, but have found that, to raise nice comb honey, the section must be closed entirely.

My crop of white comb will be about 25,000 lbs. We have good facilities for shipping at Manzanillo—steamers to all parts of the world, and weekly steamers to the United States.

As I am on tide water I can load the honey on lighters at the apiary, and load right on the vessel in the harbor of Manzanillo

without rehandling. In another article I will explain my management of these large apiaries, the labor of which is done by the natives, who have very little intelligence—probably less than the American Indian.

Cauto, Cuba.

THE COLOR SENSE OF THE HONEY-BEE.

Some Original Work Showing how the Bees Seem to Favor Blue.

BY JOHN H. LOVELL.

It has been well established by experiment that the honey-bee can distinguish between colors. Instead of describing the experiment as performed by Lord Avebury (Lubbock), let me give some that I conducted along the same plan, and, I am glad to say, with even more conclusive results.

On a pleasant September morning I accosted a yellow (Italian) bee to visit a strip of blue paper three inches long by one inch wide. To prevent the paper from blowing away or becoming soiled it was covered with a transparent glass slide of the same dimensions, upon the center of which a small quantity of honey was placed. These slides are used for mounting microscopic objects, and may be obtained of any dealer in optical instruments for a trifling sum.

After the bee had made a number of visits to the blue paper, a red slide of the same dimensions, and prepared as described above, was placed six inches to the right of it. An equal quantity of honey was also placed upon the center of this slide. When the bee returned from the hive it alighted on the blue slide, which still remained in its original position.

On the departure of the bee for the hive the slides were transposed, i. e., the red put in the place of the blue and the blue where the red had been. When the bee returned, and no longer found the blue paper in its usual position, it flew back and forth, examining both slides, paused for a second or two on the red, then resumed its flight, but finally settled on the blue. A little later it flew up into the air, but soon returned to the blue; then it flew across to the red, where it remained for the rest of its visit. The change in the position of the blue, and the discovery of a differently colored slide also bearing honey, evidently disturbed the bee; and its frequent flights showed that it was endeavoring to orient itself to these new conditions. As will now appear it did not find it necessary to repeat this course of reconnoitering.

While the bee was away I transposed the slides for a second time, the distance apart being as before—six inches. The bee returned directly to the blue. Twice it left the blue for a few moments, but each time returned to it.

When the bee left for the hive, I again transposed the slides; then the bee returned to the blue. The bee left for the hive, and I

transposed the slides. It returned to the blue.

While the bee was away I transposed the slides for the fifth time. The bee returned to the blue. Then it left the blue slide, flew across to the red, but at once returned to the blue.

The bee left for the hive and I transposed the slides. On its return it circled about as though in doubt and presently disappeared from view; but a little later it returned and settled on the blue. While taking up its load of honey it left the blue three times, but in each instance returned.

The bee left for the hive and I transposed the slides. It returned to the blue.

The bee left for the hive and I transposed the slides for the eighth time. On returning the bee hovered close to the red, and then went to the blue.

As soon as the bee returned to the hive, I transposed the slides for the ninth and last time. When the bee came back, it alighted after a little hesitation on the blue. It left once and flew across to the red, but soon returned to the blue. Left a second time but soon returned. Then it flew into the room, and on being released went back to the hive.

There can be no question that in this experiment the honey-bee was able to distinguish the blue color from the red. I repeated the experiment many times and varied it in many different ways, but the bee always showed its ability to distinguish between different colors. Only one bee should be employed, for if there are two or three they will conflict and to some extent produce confusion.

Lubbock also endeavored to show that blue is the favorite color of the honey-bee; but his results are unsatisfactory, and his method of exposition is obscure, and does not give sufficient details. Says Cowan in his book on the honey-bee, "The experiments of Sir John Lubbock are not at all conclusive that bees have a preference for any particular color." On the other hand, Hermann Müller, who was the greatest authority the world has ever produced on the mutual relations of insects and flowers, declared, after innumerable observations, that blue is more agreeable to the honey-bee than any other color. In his experiments he used flower-petals of different colors placed under glass slides, and he arranged the different colors in the following series according to the preference of the honey-bee: violet, blue, red, white, pale yellow, pure green, glaring red, and glaring yellow. Within the past ten years, however, Prof. Felix Plateau, of the University of Ghent, Belgium, has published many papers, in which he asserts that Müller was misled by a too vivid imagination.

Now, does the honey-bee prefer blue to every other color or not? Is Müller or Plateau right? During the past summer, for the purpose of answering these questions I made many experiments with slips of colored paper and with floral leaves, but the results were inconclusive. Apparently there is no

doubt that a person dressed in black will receive a greater number of stings than one wearing white clothing. Do the bees see the black more readily than the white? or does black excite them in the same way that red enrages the bull or the turkey-gobbler? Strictly speaking, of course neither black nor white is a color.

I am now devising some new experiments to be tried another season, in the hope of deciding the matter one way or the other. I should like to ask the many readers of GLEANINGS two questions. 1. Have you ever observed any evidence to prove that the honey-bee prefers one color (as blue) to another? 2. Can you suggest an experiment that will help in the solution of this problem? In either case will you kindly write and give me the benefit of your observations and suggestions? Let us remember that, in the multitude of counselors, there is wisdom.

Waldoboro, Maine.

HOW BULK COMB HONEY IS PACKED.

BY LOUIS SCHOLL.

In answer to an inquiry I will give our method of packing comb honey.

As it is impossible to produce an excellent article of comb honey in any of the deep frames so much in use, our supers are all of the shallow type with $5\frac{3}{8}$ -depth frames. With these it is possible to use full sheets of very light foundation. Room can be given only as needed, especially on weaker colonies; and the finished product can be removed sooner.

It is much easier to remove such shallow-frame supers, without handling and brushing a single comb, and in hauling the supers home, which we do with all our honey. The combs do not break down. In the honey-house they are stacked up, and the honey packed into different-sized cans, all in cases.

In most general use is the case holding two 60-lb. square cans, the same as for extracted honey, except that they have large openings with eight-inch screw-caps. Other regular and popular sizes of packages are 12, 6, and 3 pound friction-top round pails—the two sizes in cases of ten pails each, and the latter twenty to a case. All the above, with the regular 60-lb. square cans for extracted honey, were made the standard-size packages by the Texas Bee-keepers' Association many years ago.

In packing the honey, the frames with the combs are placed on a six-inch board laid across one of the tubs we use in our extracting-work. This catches all the drip and bits of comb and other wastes. The knife runs around the inside of the frame, which is then put back into an empty super, and later to be scraped clean with all the others, for future use again.

For the large square cans the combs are cut across the middle; and the two halves laid flat side by side make a layer in the can. The next layer is placed crosswise of the

first, and so on until the can is nearly full. One ten-frame super will fill a can. The combs are cut across into four pieces for the 12-lb. pails, and five pieces for the 6-lb. For the small 3-lb. cans the comb is first cut lengthwise from end to end, about one inch from the bottom; then crosswise into six pieces. This makes six small squares of comb, and the same number of half-squares of the one-inch strip first cut off. In packing these into cans we first place two of the smaller (or half) squares side by side in the bottom of the can, then lay two of the squares on top of these. In this way three cans can be filled with each comb.

Extracted honey is then poured in over the comb honey to fill up the crevices and empty space, and make up the weight. It also keeps the comb honey in a buoyant state, so that it does not mash up in shipping.

We always make it a practice to heat all our extracted honey before putting it on the market, as it will prevent granulation much longer. The liquid honey is filled in quite warm, and the cans closed. Nothing but first-class honey should be put up under any circumstances, and then a profitable trade can soon be secured.

New Braunfels, Texas.

CELL-BUILDING IN COLONIES WITH CAGED QUEENS.

BY J. A. CRANE.

[The Crane method of forming nuclei, as stated in our June 1st issue of last year, in brief, is this: The queen of a colony is caged three days, during which time cells will be started. The hive is then lifted off its bottom and a body of combs and a frame of brood with the queen is put in its place. A honey-board is put on, after which the removed brood-nest with its cells just started is set on top. The bees, according to Mr. Crane, will continue building the cells. On this point Mr. Buchanan, in our May 1st issue of this year, took issue.—ED.]

On page 284, May 1, Mr. J. F. Buchanan evidently refers to my article on increase, p. 757, June 1, 1908. I intended to indicate that the plan was a sort of combination of the Somerford and Alexander methods—the Somerford so far as getting cells started, the Alexander in getting all brood hatched and sealed, so as to lose none from starvation or neglect. I have used the plan for two seasons with the greatest success, having had only one failure out of fifty last season. In one case I caged the queen in the forenoon, and found the bees had started cells before night the same day. I raised the brood to the upper story, and released the queen below an excluder, and the bees finished the cells in fine shape. I also get the best of queens in this way, as I never let the bees raise more than ten at one time. I did not say that it was necessary to have honey coming in to make the plan a success, because I never imagined any one would want to make increase or raise queens except during a honey-flow, unless it was a regular queen-breeder, and they understand the necessity

of feeding, and practice it when necessary. I want no queens which are reared by artificial feeding myself. While they may sometimes be good, the chances are certainly in favor of those reared during a good honey-flow.

IS DOOLITTLE WRONG IN HIS ESTIMATE OF HOW FAR BEES MAY FLY?

I have also several times noted Doolittle's statement in regard to bees' flight; and while I have never doubted one statement that came from his pen, and have probably learned as many profitable kinks from his writings as from any other one source, I still doubt whether my bees ever get much more than two miles from home. To-day, May 16, there are many patches of dandelions, and a few apricot and Japanese plums, and many hard maples, in blossom. On my way to church, and also on the return trip, I watched closely all the way; and as the nearest bees in that direction are a good four miles, and all blacks, while mine are all yellow, the last yellow bees I could find were a little more than a mile and a half from home, and then for nearly a mile I did not see a bee of any kind. Of course there were not many fruit-trees in bloom; but every one that was, was literally alive with bees; also every patch of dandelions. The hard maples were most plentiful, and the bees were working on them in my yard, and for a quarter of a mile along the road much more than further away. I think the fruit-bloom yielded a little honey, as I could detect the odor of new honey in the yard. If the maple affords pollen only, as I believe, it seems that my bees were satisfied to get it at the nearest available spot, but would fly the limit to get a little nectar.

Marion, N. Y.

A NEW EDITION OF THE A B C AND X Y Z OF BEE CULTURE UNDER WAY AGAIN.

We are now busy at work on a new edition of the A B C and X Y Z of Bee Culture. It is astonishing, the number of changes we have to make from year to year—not because we have to throw out matter that is false or misleading, but because there are better methods or shorter cuts for accomplishing the same end.

We get out, on an average, a new edition of 15,000 every year and a half, or 10,000 every year. During this interval, new ideas or better practices are brought out. For example, during 1908 and '9 there seemed to be a large amount of testimony to show that feeding copiously in the fall was far better than feeding in the fall to a moderate extent and then again in the spring to stimulate.

In the multitude of counselors there is wisdom, and so in the new edition of our work we are putting more emphasis on fall feeding and less on feeding in the spring, although there come times, of course, when the latter is absolutely necessary.

HEADS OF GRAIN FROM DIFFERENT FIELDS

FOUL-BROOD LEGISLATION IN CONNECTICUT.

Mr. E. R. Root:—A bill presented by the bee-keepers (which was, I understand, commended by Dr. Phillips and yourself, and which called for an appropriation of \$1000) was rejected, but certain members of the legislature realized that something ought to be done, and one interested member drew up a substitute bill which was passed. This was the third attempt to secure foul-brood legislation, and came near being a failure. Credit is due Mr. Stephen J. Griffen, of Bridgeport, who has persistently kept the matter before the bee-keepers and legislators, and who succeeded in obtaining valuable information as to the extent of foul brood in the State, which influenced the General Assembly.

Your editorial opinion of the bill will be appreciated.

JAMES A. SMITH,

Secretary Connecticut Bee-keepers' Ass'n.
Hartford, Ct., July 31.

FOUL-BROOD BILL

PASSED BY THE CONNECTICUT LEGISLATURE, JANUARY, 1909.
Be it enacted by the Senate and House of Representatives in General Assembly convened:

SEC. 1.—For the purpose of suppressing contagious or infectious diseases of the honey-bee, it shall be the duty of the State Entomologist, when complaint is duly made, to examine and verify, and treat or destroy cases of foul brood among honey-bees.

SEC. 2.—In pursuance of the provisions of this act, the State Entomologist, or any person whom he may appoint for that purpose, shall have access at reasonable times to such apiaries or places where bees are kept, and where honey-comb and appliances are stored, as may be designated in any such complaint.

SEC. 3.—The State Entomologist is authorized and empowered to prescribe suitable forms for and to make regulations regarding such complaints, and shall keep the same on file, and open to public inspection; and he is further authorized and empowered to make, in his discretion, reasonable rules to govern, and reasonable payments for the services of agents whom he may appoint to carry out the provisions of this act.

SEC. 4.—Any person who impedes, resists, or hinders the State Entomologist or any agent whom he may appoint in the performance of the duties imposed by this act, shall be fined not more than twenty-five dollars.

SEC. 5.—To carry out the provisions of this act, the necessary expenses, to an amount not exceeding five hundred dollars, shall be paid by the comptroller on duly credited vouchers.

[This law seems to be not quite clear on some points and silent on some others. In section 3 the State Entomologist or his authorized agent is "empowered to prescribe suitable forms and to make regulations regarding such complaints." While the agents can be paid out of the fund of \$500 appropriated, as provided in Section 5, it is not made clear whether such agent has authority to apply a penalty if the "regulations" and "suitable forms" are not complied with.

In section 4, any person who impedes, resists, or hinders the State Entomologist or his agent may be fined \$25.00. If this section can be construed to mean that such person can be fined if he refuses to comply with the instructions or orders for treatment of any disease given by the entomologist or his agent, well and good; but even then the fine is rather low. In most of the laws imprisonment is made a part of the penalty at the option of the court.

In a general way, we would say that this law is far better than nothing; and if the Attorney General of your State should construe section 4 to mean that a foul-brood inspector has full authority to apply the penalty of \$25.00 in case of non-compliance with his orders, then the law will do very well; but we should say that, at the next session of your General Assembly, this provision ought to be made a little clearer and the penalties heavier.—ED.]

INTRODUCING QUEENS BY SPRAYING THE BEES WITH WATER.

Get some water and a bulb-plant sprayer and turn the cloth back over the top of the frames. Shower the bees as long as they come up, until they are quiet and hugging the combs. In this condition they can not sound a note; in fact, they are completely knocked out. Now turn the queen in, giving her a dampening also. We raise a comb if we like, and turn her right on to the comb, when she will be received. If turned among the bees on the comb the queen will be hungry, and so need not be wet.

We have introduced many queens in this way and had no failures. It is not necessary to drown them. If there is no sprayer handy they can be simply sprin-

kled with the hand. At a time when there is brood in the hive, use warm water, otherwise the colds just as good.

We took one of our most vicious hybrids and gave a live-bee demonstration at the fair to a large crowd, with no cage or protection of any kind, handing a comb around to show the queen, and no one was stung, the bees being treated to a light showering a little before opening. The sprinkling was done through a wire-cloth covered super placed on the hive as used for ventilation.

Queens can be changed by this plan without having a colony queenless, and work goes on as usual as soon as the bees are dried off.

J. W. WARE.

Puyallup, Washington.

[The scheme of spraying bees with water, or with water sweetened with a little sugar, for the purpose of facilitating the process of introducing, has been mentioned at various times in these columns; but we do not advise either, for the reason that the regular method of introducing we consider much more reliable.

The application of water in a fine spray has the effect of disconcerting or putting out of normal a colony of bees for the time being; and while in that condition it will be a little more inclined to accept a queen than otherwise. If any others have had any experience in this plan we shall be glad to hear from them.—ED.]

QUEENS FLYING AWAY WHEN HIVES ARE OPENED, AND NOT RETURNING.

I received a queen by mail and introduced her all right, but I don't know where she went to. About four days after I put the cage in the hive I opened it to see how the queen was. Suddenly she flew, and of course, I thought she would come back; but in twenty minutes I could not find her in the hive. So I looked in my six other hives (I have only seven), but she was not in any of them.

Strangest of all, the last hive I opened, the queen flew from that hive too, and did not come back. I can not account for their not coming back except that there was a swarm hanging near, and the queens entered that. The latter queen knew her hive, because she was mated there about a week before.

Oakland, Cal., July 22.

L. MCCARGAR.

[It is very rare that a queen will deliberately fly off the comb when the hive is open. When she does this the only thing to do is to leave the hive just as it is, with the cover off, and step back. The queen will circle about in the air to mark her location. If the hive is left open for fifteen or twenty minutes she will, in all probability, return. If, however, the queen was raised in that hive, and was mated from it, there will be no harm if she does fly off the comb, for she will be almost sure to return. Why your queen did not do so, as mentioned in your second paragraph, we are unable to explain. As we have said before, bees (or queens either for that matter) follow no invariable rule.—ED.]

CAN RIPE CELLS BE SENT BY MAIL?

If, as I am led to believe, it is quite a task to introduce virgin queens, why not make it a point to have almost ripe queen-cells always coming, and so far as practicable, ship them instead of the virgin queens?

FENCES ATTACHED TO SECTION-HOLDERS.

Why are not section-holders made with fence separators attached, since, as it seems to me, comb-honey production without separators would be almost a failure. I have some home-made section-holders with separators attached, the separator being, of course, necessary on only one side of the holders. This also does away with a follower in the super, as the wedges or springs can be put between the ends of the last holder and outside wall of the super.

St. Paul, Minn., July 23.

J. A. RYE.

[A ripe cell sent through the mails for not longer than 24 hours during hot weather, if immediately put in a queenless hive on arrival, may hatch out into a good queen, but the chances are that she will fail to hatch; or if she does, she will be dark-colored, short-lived, or both. Practical queen-breeders know that, if ripe queen-cells are subjected to a temperature lower than that of the hive for only a short time, the queen, when she does hatch, will not be as strong and vigorous as one that has been kept during the entire period of incubation in a good cluster of bees.

Many years ago, pieces of comb from some good breeder were sent through the mails, which, on arrival at destination, were used for grafting cells. In a few cases, apparently a good batch of cells was secured. It is not practicable to graft from these pieces

of comb except where they are detained in the mail-pouch not longer than 12 hours in hot weather. Later experience in queen-rearing has taught us that queens reared from larvæ, or from cells that have passed through the mails, are not as good as those reared under normal conditions in the hive.

It is perfectly feasible to attach the fences to the section-holders; but the reason why manufacturers do not make up the combination is because it is not so easy to get sections in and out of the supers. Then, moreover, a separator or fence that is fastened to a section-holder can not be readily cleaned of propolis.—ED.]

HOW BEES EJECT WATER FROM NECTAR DURING THEIR FLIGHT.

Dear Ernest:—The article in GLEANINGS, "Ripening of Honey," brings back vividly to my mind the summer when the field where your father's house stands was all in buckwheat. A. I. R. came out to the apiary one sunny day, and, standing by the hickory-tree at the edge of the apiary, called my attention to the bees sailing in from the buckwheat-field; and as we watched them we could see the streams of spray, or droplets, discharged by them as they sailed for their hives. It seems as though it were only yesterday, instead of twenty-seven long years ago. Those were the happy days of boyhood.

Fort Casey, Wash., July 3.

ERLE.

[The writer of this, Dr. E. H. Sargent, had charge of our apiary somewhere along in the early 80's. He subsequently graduated from Cornell University, taking a scientific course; taught science at a military academy, and later took the degree of "M. D." During one of his vacations Dr. Sargent made some foul-brood pure cultures at Medina, for that was at a time when the disease was raging in our home yard. Some of his findings at the time were verified by other scientific men. He was always a student of nature, and his contribution of the incident that took place years ago when he was in Medina fits in very nicely here.—ED.]

WHEN IT PAYS TO EXTRACT FROM THE BROOD-NEST AND FEED SYRUP.

The brood-chambers of my hives contain from two to four frames of the finest alfalfa honey. I can get 20 cts. per lb. for this here. Would you recommend extracting this honey at the end of the season and feeding sugar syrup? We usually have here a fall flow of heartsease that they might store for winter; but this has been a dry season with us, and I do not expect the heartsease this time.

Geary, Okla., July 28.

N. F. GARDINER.

[Under the conditions mentioned we would advise you to extract your alfalfa honey and feed sugar syrup instead. The latter would cost you about 3 cts. per lb., and when stored in the hive possibly 5 cts., if you figure the evaporation and energy of the bees in putting the syrup into comb. You will then have 15 cts. clear profit less the cost of extracting; but when extracted honey brings only 6 or 7 cts. it usually does not pay to make the exchange for syrup.—ED.]

DOES THE SAME BEE VISIT MORE THAN ONE SPECIES OF FLOWER ON THE SAME TRIP?

I wish to mention a matter about which there is sometimes more or less question; and that is in regard to the matter of bees visiting different flowers in their quest for honey. At Barrington I asked the apiarist to go with me to the alfalfa-field, as I wanted to see if the bees were gathering nectar from it. We found, on arriving there, a mixture of alsike and alfalfa in about equal proportions, and that bees were vigorously at work. I asked him to watch carefully those on alsike and I would do the same to those on alfalfa, to see if they changed to the other plant. In no instance did we find a bee to change from its favorite, though the other actually touched the flower it was working; but a bee working the other would alight on the one rejected. From the examination we made, we concluded that bees never change from their favorite so long as it affords nectar.

Evansford, Ill., July 28.

WM. M. WHITNEY.

WHAT IS MEANT BY THE TERM "GOLDEN," REFERRING TO A STRAIN OF BEES?

In perusing the advertising department of GLEANINGS one will observe several queen-breeders offering for sale golden and three-banded Italian queens. One says "golden and three-banded;" others, "golden and red-clover." What I wish to know is, what character-

izes Italian bees. It has always been my impression that golden Italian bees should show four to five yellow bands; and if not, they should be classed as three-banded. I have queens in my yard from several breeders, and I wish to give you in a letter my experience with some of them.

Marshall, Mo.

R. G. ROBERTSON.

[The term "golden Italians" has come to be somewhat flexible. It may mean on the part of some advertisers four or five banded Italians; and on the part of others, very bright three-banded bees. We do not believe that any of our advertisers mean to misrepresent; but carelessness in the use of the expression has grown up of late. We are hereby suggesting that all of our advertisers be a little more specific in what they mean when they use the term "golden Italians" or "goldens." We hope every advertiser will specify the number of yellow bands to his goldens. This will remove all misunderstanding and objection.—ED.]

CERTAIN COLORS AND ODORS OBJECTIONABLE TO BEES.

With reference to recent articles on bees being more angry at times than others, I have noticed the trouble I have had along this line was while wearing a faded black derby hat, and especially while working the garden and bending over, and that I am not molested while wearing plain straw hat. Bees know their enemies, as a matter of course. Is it not natural for them to take that old black hat for a bear?

As a further inference, why should they not be hostile to certain colors and certain odors in clothing and people. I had a negro pulling some plants. He could have been heard a block off, and, besides, he tore down some of my best tomato-vines in getting out of the garden. After he was out of the garden he said, "Whoo-pee! Boss, I reckon you have to keep dem plants."

Suffolk, Va.

W. T. BAILEY.

[We may say that it is pretty well established now that dark colors are more objectionable to bees than light ones. Certain persons or animals may give off an odor that is offensive to the extent that it may cause them to sting. It is our opinion, however, that the average colored person could work among bees, if he understands the art of handling them, just as satisfactorily as a white person. We do not believe that the color of the skin itself would make the bees much crosser. The colored man referred to probably manifested a nervousness, and a disposition to strike at the bees, that caused them to attack him, rather than any odor or color of his person.—ED.]

FIRST SWARM OF THE SEASON ISSUES BEFORE QUEEN-CELLS ARE SEALED.

Is it a usual thing for the first swarm of the season to issue without leaving sealed queen-cells? Doolittle, in "Scientific Queen-rearing," says, "I have yet to find where the first swarm of the season, from an apiary, has ever issued previous to the sealing of the first queen-cells." I wish to say that, on June 7, the first swarm of the season in my yard issued. After hiving it I carefully examined the parent hive and found five or six queen-cells, but none of them were sealed.

On June 20, thirteen days after the first swarm, the second one issued from the hive. I have been taught that the eighth day is the time for the second swarm. How about this?

Columbus, Ohio, July 7.

J. T. HILLERY.

[In a general way we may say that it is an axiom in beekeeping that "bees do nothing invariably." While they follow general rules, there are always exceptions. You will note particularly that Mr. Doolittle did not say that a swarm would not issue before the sealing of the first queen-cell, but that he had yet to see a case of that kind.

The same general principle, that bees do nothing invariably, would apply to your last paragraph.—ED.]

DOES HONEY-DEW CANDY?

My experience with honey-dew mixed with other honey is that, in cold weather, the honey-dew will come to the top and remain liquid while the honey will candy. Why can not the honey-dew be poured off and the honey be melted, and thus separated from the honey-dew?

Valparaiso, Ind., Aug. 12.

JOHN C. BULL.

[Our experience has rather led us to believe that some honey-dew does candy; but we think that there might be varieties which would behave in the manner described by our correspondent. We should be glad to hear from others.—ED.]

OUR HOMES

By A. I. Root

All scripture is given by inspiration of God, and is profitable for doctrine, for reproof, for correction, for instruction in righteousness—II. TIMOTHY 3: 16.

Shortly after our issue for Aug. 1 went to press, our good friend Dr. Miller, in a personal letter to myself, in a sort of postscript at the end, had the following:

When you have time to think it over, I hope you will take it back that Solomon isn't good authority. That is the entering wedge for disbelief in the whole Bible. If you doubt Solomon, I can doubt Paul.

A few days afterward came the following:

Mr. A. I. Root.—The writer of this reads most of your writings in GLEANINGS. Acting upon the suggestion of the publishers, I venture to write a criticism of your paper in the Aug. 1st issue, and also offer some suggestions as follows:

First, you have made a serious error in your criticism of Solomon and the writings ascribed to him, and which it is thought you would not have made had you been as well informed as you might have been from a careful search of the Bible on the subject. Kindly read I. Kings 3: 12; also I. Kings 10; II. Chronicles 9; Matthew 12: 42.

From the foregoing you will see that our Lord put the stamp of his approval upon the Scriptures without exception, invoking his hearers to search them as authoritative proof of his mission. He unqualifiedly indorses the wisdom of the queen of the South in coming to see and learn of the wisdom of Solomon. Of Solomon's wisdom you have seen it declared that it embraced the fullest extent of human knowledge—none like him before or after, etc.

Again, let me suggest that, if you have a copy of the International Series of Bible (if not, obtain one), of modern arrangement; read the Old Testament summary under the heading of Ecclesiastes, Proverbs, Song of Songs, etc., by George I. Spurrell, M.A., and Rev. C. H. H. Wright, D.D.; and after familiarizing yourself with the views therein set forth, again give us in your journal your views upon the life of Solomon and Ecclesiastes in the light of your latest reading upon the subject.

Your writings are read by a large following; and, being a writer of much influence, you should exercise care to insure against writing at random, or in a manner that might be construed as an adverse criticism of the Bible, which I do not think you intended.

Cleveland, O., Aug. 13.

WM. B. HESS, SR.

Well, friends, that is rather tough on the author of the Home Papers, is it not? Dr. Miller says my teaching in that one respect is an "entering wedge for disbelief in the whole Bible;" and this other friend lays down the law (theological law) and accuses me of "writing at random."

I admit that I have been pulled into deep water; but I wish to suggest that our good friend Keck, Dr. Miller, and the writer of the above letter, are *also* in deep water. By the way, may I be excused for suggesting, with the kindest feelings in the world, that it would sound much better if all three of these friends, Keck, Miller, and Hess, would give what they have to say as their *opinion*, or what a careful reading of the Bible seems to say to *them*. It does not help me any to have somebody say, "That is the way the Bible reads, and you can not get around it," especially while so many good people understand certain parts of the Bible differently. Perhaps I am wrong in undertaking to handle such questions in theology.

In II. Timothy 2: 23 (the chapter preceding the one from which I have taken my text) we read: "But foolish and unlearned ques-

tions avoid, knowing that they gender strife." I would not have gone into this discussion had not friend Keck led the way; but now we are in it I hope you will excuse me for trying to explain to you how I understand God's holy word.

I do believe, as our text says, that all scripture is given by inspiration. But right here my stenographer, W. P. Root, suggests that the New Version reads as follows: "Every scripture inspired of God is also profitable for teaching, for reproof, for correction, for instruction which is in righteousness." I rather think, come to look into it, that I like the New Version better than I do the old. It seems to me that Dr. Miller and friend Hess both fail to consider the point I made was that Solomon had departed in *his old age* from the straight and narrow path. Friend Hess refers us to the 10th chapter of I. Kings; but why did he not turn over the leaf and read the 11th chapter also? But before we consider the 11th chapter there is another point. Allusion has been made to the queen of Sheba. When she visited Solomon he was a good man—that is, it looks so to me. He did not show her his thousand wives (and *surely* not his *concubines*). The queen of Sheba made her visit to Solomon 992 years before Christ. His disobedience to God in worshipping idols was 984 years before Christ—eight years later. I spoke of Solomon having 1000 wives in his old age. I shall have to beg pardon all around. That was a blunder. The 11th chapter of I. Kings tells us he had only 700 wives and 300 *concubines*.

Let us go over that 11th chapter a little. The first verse starts out by saying, "But king Solomon loved many strange women." The second verse says that the Lord spoke unto the children of Israel, and they were expressly and plainly forbidden marriage with the other nations. But marrying these women was not enough. The fourth verse tells us, "For it came to pass when Solomon was old that his wives turned away his heart after other gods." The rest of the chapter tells us about his not only joining in with his wives in idol worship, but he "built high places," or temples, as we would understand it, for the worship of idols. He even had one for the abominable *Moloch's* worship; and he "burned incense" unto other gods "for all his strange wives."

The ninth verse says the Lord was angry, because the heart of Solomon was turned away "from the Lord God of Israel." We are told that, after that, the Lord appeared unto him twice, and "commanded him concerning this thing." But the tenth verse says, "But he kept not that which the Lord commanded." After he continued to go from bad to worse, paying no regard to his frequent warnings, the Lord said, "I will surely rend the kingdom from thee, and give it to thy servant." If there is any thing in the Bible to indicate that Solomon repented, like the thief on the cross, and received forgiveness, I have failed to find it; yet I am fairly familiar with all the passages that friend

Hess has indicated. Now just one thing more:

In the fortieth verse of that same chapter we read, "Solomon sought, therefore, to kill Jeroboam." Now, I want to submit the matter to our audience. Of course I do not know just when the book of Ecclesiastes was written; but it was after Solomon's downfall. Let us for a minute contrast the words that friend Keck quotes: "For the living know that they shall die, but the dead know not any thing; neither have they any more a reward, for the memory of them is forgotten." There is more of it, but that is enough. Let us now turn to the 40th chapter of Isaiah, last verse: "For they that wait on the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; they shall walk, and not faint." There, friends, which is best authority—Solomon in his old age, after he had disobeyed the Lord, and fallen from grace, or the grand old prophet Isaiah who lived an honest, faithful, pure, and true life? Let us now go back to our text.

My understanding of it would be that the Bible is "given to us by inspiration," and it is "profitable" in the way of its glorious promises and exhortations to purity and righteousness, and it is also profitable in the historical part of it where it tells how good men permitted themselves to be tempted and led astray. Saul started out grandly, but he could not bear responsibility and power. He ended miserably. David started out, both as a boy and a man after God's own heart. He was tempted, and fell, and not only committed adultery but murder. But he repented, and God forgave him. I should be *exceedingly* glad to know that Solomon *repented*.

Now just a word about taking Solomon's last utterances as authority. Years ago I heard of a church-member—in fact I do not know but he was a superintendent in a Sunday-school where he then lived. He was a good man, and stood well in that community; but that man led astray and ruined an unprotected girl who was employed in his family. The matter came into the church, and caused a big excitement; but he confessed his fault, and the church finally decided to overlook it—to forget and to forgive. Years afterward there was a big revival in that community. It was the evangelist's plan to have all the members of the church go out and exhort sinners to repent. He, not knowing the man who had committed that crime, selected this church member among others to go from house to house to talk with the unconverted. Come to think of it, I do not think this man was very wise or he would have declined. A certain day was appointed, and the church-workers went from house to house. This man put his foot on the doorstep, to go into the home of a bright and intelligent woman who was not a member of any church. I do not know but she attended card parties and dances, and things of that sort; but when she saw that man (that gray-headed old sinner I was go-

ing to say; but as he had confessed his fault to the church I suppose I ought to choose some gentler name) about to come into her home she stopped him at the doorway and said something as follows:

"Mr. Brown, if I am correct you are coming here to talk to me about the welfare of my soul."

I presume he was somewhat embarrassed, for he might have known what was coming. I do not know what he said—perhaps nothing; but she continued: "Yes, I suppose I am a sinner. Perhaps in some respects I am a heathen, and very likely I need reproof. But I hope you will excuse me if I speak plainly, and say it must come from some other source than you. I shall go down to my grave in my sins as I am now unless they have some better messenger from God to come to me and point the way of life."

So far as I can remember he turned around and went home and did not undertake any more "missionary work"—at least at that time.

And this opens up another question—the one about eternal punishment. Perhaps I was unwise and not exactly orthodox when I said I did not believe in everlasting torture. In thinking it over since, I can now tell you better what I do believe. Last Sunday our good pastor gave us a list of things that modern theology has dropped. He spoke of Calvinism and of "God's elect." You older ones will remember the discussions that we used to have on the subject. He said that was all forgotten nowadays, and put aside. I sat close to him, because I had to be right in front of the pulpit on account of my hearing, and I was almost impelled to say, "Thank God." Then he mentioned another thing that is dropped and forgotten, at least in most communities; and that is, that young people belonging to ungodly parents, if they die in childhood are doomed to "eternal condemnation." He did not say eternal *damnation*, but *condemnation*. Now, this old man I have been speaking about, who forgot his religion, his God, and the responsibilities that rested on him (particularly as the father of a family and a member of the church) to protect and be a father to that child—this man must have felt his punishment to the last day of his life, and I hope he *did*. Who ever got a glimpse of the man must have recalled the *crime* he had committed, not only before God but before the eyes of all the world. He was *condemned* here on earth, and I should not wonder if his condemnation rests on him still, and will rest on him for ever. It is a terrible thing to say, yet I should not be surprised if we find, in the great future, that punishment for things of that kind goes on from everlasting to everlasting. Solomon stood before the people as a spiritual leader. His responsibility under the circumstances was a thousand times greater than that of the person I have taken for an illustration. This 11th chapter of I. Kings is a terrible one to read. Solomon continually, persistently, and deliberately broke God's holy command, and refused to heed God's

repeated warnings. But, although this chapter is a terrible one, it is a "profitable" one to read, according to the words of our text. The history of the downfall of God's chosen king ought to be a warning to us as to the consequences of sin, and an exhortation also to remember God's promises to those who obey his holy law.*

While I am familiar with the scripture texts mentioned, I shall have to admit that I have not seen or read the book mentioned; and with my busy life, and especially with the large amount of reading that is piled up before me daily, I can not read any thing that requires very much time. I hope you will excuse me if I say, also, that if the articles you mention try to teach that Solomon in his old age was an inspired authority from God, I hardly think I care to read them. The man who deliberately commits adultery, and does not repent, will very likely soon commit murder. There are not only instances of this in the Old Testament, but the dailies of *to-day* relate no end of cases of adultery, murder, and then suicide. The criminal is not the only one who commits murder; but a man who is comparatively innocent, who has been wronged in his domestic affairs, often kills the guilty accomplice, and the courts seem, a good deal of the time, inclined to excuse him. While discussing this it suggests that a good many have written me articles in regard to the penitent thief on the cross. Many of these writers reject the idea that this thief and probable murderer obtained full and free pardon. Now, if Solomon or anybody else who has been, let us say, unfaithful to his wife, and repents as did the thief on the cross, or the prodigal son, I am willing to accept him as authority.

Toward the close of the last chapter of the book of Nehemiah, that honest, faithful, and sturdy old warrior says, in speaking of Solomon, "Even he did outlandish women cause to sin." Well, it would seem that right down through the ages when Satan has wanted to blockade or blot out a good man he has been choosing these same "outlandish women" to do the work. Sometimes even

* After the above was given to the printers I ran across the following in the *Sunday School Times*, and I regarded it as a "Godsend," for it tells what I wanted to say better than I could have put it in language myself. And, by the way, if there is any better authority in the whole wide world than the *Sunday School Times* (so far as theological questions are concerned) it has not yet come to my knowledge. Here is the quotation, the last italics being my own:

Unpunished sin does not exist. No man has ever been clever enough to discover how to sin—even in a trifle—without paying a penalty for it. God does not have to punish us for our sins in any arbitrary way. The sins take care of that—they do their own punishing. A writer in *The Saturday Evening Post*, describing the work of the modern bank examiner, says that such an examiner should have the ability to follow up the first trace of wrong-doing when he runs across it, and then adds, as a reason why this can always be done if one is watchful enough: *Crookedness invariably leaves a trail, no matter how indistinct the trail may be. Just there is the punishment of all crookedness, or sin—its trail. That trail may elude human eyes, but it is there. It leads into the life of the one who committed the sin. It is a pathway by which repetition of the sin may enter that life more easily. It is a scar that is never in this world gotten rid of. The trail is blazed the instant the crookedness begins. Our loss and punishment are assured then and there. Christ can forgive and heal and blot out; but Christ can not undo the record, nor make the loss as though it had not been. He would have us think of this before the trail is commenced.*

ministers of the gospel fall in the same way that Solomon did; and I know of no more pitiful spectacle than to see one of these men try to keep on preaching and filling a pulpit, and warning sinners to repent. Once or twice in my life I have heard a minister try to preach after such a thing had happened. The Spirit of God had departed from him, and the poor fellow did not know any better than to think he could preach a good sermon, and that no one would recognize the difference. Hypocrites may carry the day for a little while, but it will not be long. The man must either confess his sins, and ask God and his fellow-men to forget and forgive, or he can never keep on as one of God's chosen servants. In fact, I have sometimes thought it would be better if he would never think of trying to preach any more, no matter how honestly and humbly he may repent. The command, "Thou shalt not commit adultery," comes right after the one against committing murder; and the man who is guilty of either of these great crimes has not only lost his spirituality, but even his judgment and understanding in other matters, seem to have departed from him. He is crippled for life in every way. In view of this, dear friends, shall we not all be *exceedingly* careful? When you are sorely tempted (either by anger or by "strange women"), carefully consider that in *one single moment* you may spoil your peace of mind and your happiness for ever. The consequence of a single act of this kind will punish you through life here on earth, and, according to the Bible teaching, as I understand it, the punishment (in some sort of way that we are not prepared to understand) may go on and on, into the great *unexplored* future.

I have a feeling, in closing, that, as I have not studied theology, I am out of my beat; but I have many times thought I would rather have the advice of a common every-day person who has *good sound common sense* than some of the opinions of the learned doctors of divinity. Some of you will, perhaps, think it rather bad taste for my poor self, under the circumstances, to quote the 27th verse of the first chapter of I. Corinthians; but I think I will use it for my closing text.

But God chose the foolish things of the world that he might put to shame them that are wise; and God chose the weak things of the world that he might put to shame the things that are strong.

"BACKWARD, TURN BACKWARD, O TIME," ETC.

Mr. E. N. Root, of New York city, brother of W. P. Root, our stenographer, has kindly furnished us the names of the authors of the two poems I quoted from in that Home paper, page 481. He says:

"Rock me to Sleep, Mother," was written by Elizabeth Akers Allen, over fifty years ago. She was the author of several fugitive poems. One entitled "Endurance" is a classic.

The other poem, "Alexander Selkirk's Lament," beginning,

I am monarch of all I survey,

My right there is none to dispute,

was written by William Cowper over a century ago. He was the author of many of our best hymns. One of them begins:

God moves in a mysterious way

His wonders to perform:

He plants his footsteps on the sea,

And rides upon the storm.

New York, July 8.

E. N. ROOT.

POULTRY DEPARTMENT

By A. I. ROOT.

THE DOLLAR HEN; A NEW UP-TO-DATE POULTRY-BOOK.

In our issue for May 1 I spoke of a valuable bulletin sent out by the Department of Agriculture in regard to the egg trade of the United States. This bulletin was received with great favor, not only by poultry-journals but by the agricultural papers generally. Some of the poultry-journals considered it of so much value that they copied it entire. Well, this bulletin was the work of Milo M. Hastings, formerly Poultryman at the Kansas Experiment Station, and later in charge of the poultry investigation of the Department of Agriculture; and this new book that is just out is by that same man. It contains something over 215 pages of rather fine print; and my estimate is that this book contains more sound solid sense of real value to the poultry-keepers of the world than any thing else that has ever come to us in print. The book is not illustrated, as I think it should be, and it does not go into detail as many of the other poultry-books do; but it draws a sharp and clear line between good *common sense* and *nonsense*. It is a scientific work, and it comes before the poultry-keepers in the way our experiment stations come before our farming people — not only with authority based on up-to-date science, and with no bias in favor of anybody nor for any particular thing.

With this preface let me make some extracts from the book. It opens up this way:

Twenty-five years ago there were in print hundreds of complete treatises on human diseases and the practice of medicine. Notwithstanding the size of the book-shelves or the high standing of the authorities, one might have read the entire medical library of that day and still have remained in ignorance of the fact that outdoor life is a better cure for consumption than the contents of a drugstore. The medical professor of 1885 may have gone prematurely to his grave because of ignorance of facts which are to-day the property of every intelligent man.

There are to-day on the book-shelves of agricultural colleges and public libraries scores of complete works on "Poultry," and hundreds of minor writings on various phases of the industry. Let the would-be poultryman master this entire collection of literature, and he is still in ignorance of facts and principles, a knowledge of which in better-developed industries would be considered prime necessities for carrying on the business.

The reader who is looking for information concerning fancy breeds, poultry shows, patent processes, patent foods, or patent methods, will be disappointed, for the object of this book is to help the poultryman to make money, not to spend it.

What do you think of the above as a start-out? About a year ago I criticised a new poultry-book from a college professor in the West because he did not seem to have any comprehension of the new things that have recently come up in the poultry business; but the Dollar Hen touches on every thing that is being tried and mentioned in our poultry literature. There has been quite a little discussion in regard to fireless brood-

ers and the Philo system. After discussing the matter of brooders he closes with the following:

Curtis Bros. at Ransomville, N. Y., who raise some twenty thousand chicks per year, have adopted the following system: The chicks are kept under hovers heated by hot-water pipes for one week, or until they learn to hover. Then they are put in Philo boxes for a week in the same building, but away from the pipes. The third week the Philo boxes are placed in a large unheated room. After that they go to a large Philo box in a colony house.

You see, instead of deciding the matter for himself he tells what a big institution has decided on—a place where they raise 20,000 chickens a year; and from what experience I have had with lampless and other brooders I should say the Curtis brothers are just about right in the matter.

After the above he gives the following directions for making a fireless brooder:

To make a Philo box of the Curtis pattern, take a box 5 in. deep and 18 in. to 24 in. square. Cut a hole in one side for a chick-door; run a strip of screen around the inside of the box to round the corners. Now take a second similar box. Tack a piece of cloth rather loosely across its open face. Bore a few auger-holes in the sides of either box. Invert box No. 2 upon box No. 1. This we will call a Curtis box. It costs about 15 cents, and should accommodate fifty to seventy-five chicks.

In regard to the latest investigations in regard to incubators he gives the following:

The writer has long been of the conviction that a plan which would keep the rate of evaporation within as narrow bounds as we now keep the temperature would not only solve the problem of artificial incubation, but improve on nature and increase not only the numbers but the vitality or livability of the chicks.

In regard to turning and cooling the eggs in incubator work, I quote as follows:

In incubation practice it is highly desirable to change the position of eggs so that unevenness in temperature and evaporation will be balanced. When doing this it is easier to turn the eggs than not to turn them, and for this reason the writer has never gone to the trouble of thoroughly investigating the matter. But it has been abundantly proven that any particular pains in egg-turning is a waste of time.

COOLING EGGS.

The belief in the necessity of cooling eggs undoubtedly arose from the effort to follow closely and blindly in the footsteps of the hen. With this idea in mind, the fact that the hen cooled her eggs occasionally led us to discover a theory which proved such cooling to be necessary. A more reasonable theory is that the hen cools the eggs from necessity, not from choice. In some species of birds the male relieves the female while the latter goes foraging.

Eggs will hatch if cooled according to custom; but that they will hatch as well or better without the cooling is abundantly proven by the results in Egyptian incubators, where no cooling whatever is practiced.

He has quite a chapter on the diseases of poultry; but before he goes into it he gives us a paragraph of good sound sense. See what you think of it:

For the study of the classification and description of the numerous ailments by which individual fowls pass to their untimely end, I recommend any of the numerous books written upon the subject. Some of these works are more accurate than others, but that I consider immaterial. The study of these diseases is good for the poultryman, it gives his mind exercise. When a boy in high school I studied Latin for the same purpose.

The author recommends hopper feeding, or an arrangement for hopper feeding that will let each individual fowl select from the different hoppers so as to make a balanced ration, which I agree with exactly.

In regard to giving chickens meat as well as different grains, he writes as follows:

Chickens are not by nature vegetarians. They require some meat to thrive. It has been proven in several experiments that young chickens with an allowance of meat foods make much better growth than chickens with a vegetable diet, even when the chemical constituents and the variety of the two rations are practically the same.

Very few farmers feed any meat whatever. They rely on insects to supply the deficiency. This would be all right if the insects were plentiful and lasted throughout the year; but as conditions are, it will pay the farmer to supplement this source of food with the commercial meat foods.

After going over the book several times we have decided we can do our readers no greater favor than to offer it at a low price clubbed with GLEANINGS. See A. I. Root's Special Notices in this issue for particulars.

Just one more thing in favor of the book that I came pretty near overlooking. If carefully read it will head off a great lot of the humbugs and swindles now being advertised to-day in our poultry-journals. As an illustration, he shows how utterly impossible it is to sort out the unfertile eggs before they are put into an incubator. Notwithstanding this, a Missouri woman (see p. 216, April 1) is still advertising in many poultry-journals a secret for doing this very thing. There is no method known, and probably never will be, to tell this until the egg has been in a brooding temperature from 48 to 72 hours. The author is thoroughly conversant with the work that has been done at our experiment stations in the United States and Canada; and he uses this knowledge to help people to get rid of a lot of foolish superstitions connected with the poultry and egg industry. The chapters on the care of eggs are well worth a dollar to any one who has hens enough to furnish a dozen eggs a day.

In regard to where the incubator should be located, after quite a valuable chapter on the subject, Mr. Hastings sums it up as follows:

Where incubators are run on top of the ground I have found the results to be poor, and to improve, the bigger and deeper and damper and warmer and less ventilated the cellar is made.

A WHITE-LEGHORN EGG-FARM.

A few days ago somebody told me there was a man within ten miles of my home who had 1500 laying hens, and made it his business to raise eggs for the Cleveland market, devoting his whole farm to that one thing. I have just paid him a visit. His name is Mr. Frank Swift, and I found that he has indeed about 1500 laying hens, besides more than a thousand chickens coming on. He keeps them in yards of between one-fourth and one-eighth of an acre each, and from 200 to 250 laying hens in a yard. These 250 laying hens all roost in one building. Most of the yards have no green thing in them at all unless it is peach and plum or other fruit trees. But they cut grass and carry it to them. Where land is not too expensive it seems to me I would have larger yards, or have extra yards and change the fowls from one yard to another. The chickens are all hatched in incubators. He has no use for

sitting hens so far. He has three 360-egg incubators. He has just caught on to the fireless brooder; but he thinks the chickens should have artificial heat for some time at first, say two or three weeks, depending on the season of the year, and, of course, locality. He feeds grain mostly, particularly corn and wheat. The laying stock is fed twice or three times a day. The thousand half-grown chickens are all in one large lot, and are fed three or four times a day, while the thousand run all together, if they choose. They roost nights in six colony houses after the Cyphers pattern.

When I asked if they had no trouble from contagious diseases where 200 or more are kept in one house, the young man who showed us around said he could not remember that they had had any trouble of that kind.

The father was absent at the time, or perhaps I should have been able to get more exact particulars. They have some trouble from poultry vermin, of course. If I recollect rightly he said they used no preventive except gasoline and carbolic acid sprayed on the walls and roosts. Some of their houses have cement walls. These are less likely to harbor vermin. They keep the vermin off the roost-poles by dipping them in kerosene. They manage sitting hens by getting them all off the nests at four o'clock and shutting the nest up. The nests have a long door in front, hinged at the bottom. By raising it up and fastening it with a button they close a long string of nests at once.

Right in the middle of August, in the moulting season, he says they are getting about 600 eggs a day from the 1500 hens. Their laying hens are disposed of, usually, when about three years old; therefore 1000 chickens must be raised, more or less (counting about half as roosters) to keep up the number.

I asked the young man how long his father had been keeping 1000 or more laying hens right in those same yards. He said he did not know, but it was about as long as he could remember.

Now, I hope friend Swift will excuse me when I mention something very singular about his poultry-keeping. They do not read or take *any poultry-journal at all*, and no agricultural paper having a poultry department; and yet Mr. Swift runs a successful egg-farm, and keeps it up year after year. I suppose there are two extremes which we should avoid, and friend Swift has taken one of them, if I am correct. He goes on his own way, and ignores all that is going on in the great outside poultry world. The other extreme would be to take all the poultry-journals and a great lot of agricultural papers, just as I am doing, and have a great lot of book knowledge without much real practice. If I am not mistaken, a lot of people have failed with egg-farms because they depended on books *too much* and on the statements in the poultry-journals. I do not wonder that people who start out with honest enthusiasm become disgusted and discouraged by sending for the poultry secrets that have

been so much advertised, and then finding they have been "humbugged *again*."

The young man said he had heard of the Philo system, but they had never cared enough about it to get Philo's book. They were considerably interested, however, in the lampless brooder.

I asked about having a bone-mill and getting bones at the butcher's. They are quite a piece from any meat-market; and besides, he said, they had a bone-mill, but it was too hard work to turn it. When I suggested a gasoline-engine he thought that was going to a great deal of expense just to grind bones for chickens. Yes, it is; but if the engine could be made to do a lot of other things besides, it might prove to be a good investment. They have a windmill and a water-tank, and run water to all the nearby yards. They give the chickens water in open buckets. When I suggested the drip system and a little cup that is constantly running over he said it would no doubt be a good thing, but they had not got around to it.

They furnish the meat part of rations for the laying hens by purchasing beef scrap and mixing it with a wet mash.

They built one poultry-house with cement walls partly under ground, expressly to grow broilers from eggs hatched quite early; but they did not make it pay. They are using this broiler-house now for a laying-house; but he said it did not give any better results, if as good, as the houses built on top of the ground; and I believe it is generally true that chickens do not seem to thrive in any apartment where the floor is much below the general surface of the ground.

I asked him if one man could take good care of 1500 laying hens and 1000 chickens. He said he guessed he *could*, but sometimes it would "keep him humping." It looks to me as if it would save them a lot of time and work to have drip water in every poultry-yard, and some arrangement for hopper feeding. It might take a little more feed, but I am not sure of even that; and when every chicken in the whole ranch never goes hungry, there would certainly be a better egg-yield.

I supposed, of course, that with from 600 to 1000 eggs a day they would be carried to the Cleveland markets, about 20 miles away, every day or every other day; but he says they carry their eggs to the city only once a week, and they take no pains to tell their customers which eggs are one day old and which are a week old. They are sold at the groceries; but, of course, they could get more money by delivering them, say, when they are one day old, to special customers; but it would be quite a little more expense than taking them where they can unload at once and go straight back home.

SKUNKS, WEASELS, HAWKS, ETC.

He said they had pretty effectually cleaned out all the enemies of a chicken-farm except the hawks. When I asked him why they did not give those half-grown chickens a cornfield to run in during the very hot days

he said that was what they used to do until the hawks got a fashion of hiding in the corn so as to catch the chickens. When they banished the cornfield and put the chickens in an open lot without any trees, nor any thing for shade except their roosting-places, they managed to keep the hawks away. Several of the yards for laying hens are in a good-sized orchard; and I believe an orchard is about the best place for a poultry-yard. The chicks pick up many of the insects that trouble apple and plum trees, and they also keep up the fertility of the soil.

Mr. Swift has nothing but pure White Leghorns; and one of the poultry-journals recently made the statement that the successful egg-farms, almost all the world over, are using only a non-sitting strain of White Leghorns.

When I asked the young man if his father did not buy a pretty good-priced rooster, one or more every season, to get a good strain of blood, he said he never had so far as he knew; and he did not think they took any pains to get new blood outside of the premises. With so many yards it was an easy matter to select a male from some yard that was no close relation to the laying hens in another yard; and he certainly had some very handsome Leghorns, both male and female.

In conclusion I am glad to know of at least one egg-farm right near our home that is a paying business; and I do not know, too, but it is a pretty good thing to know that it pays without the help of a poultry-journal or any of the new-fangled inventions and ideas.

POULTRY SECRETS, ETC.

We clip the following from the *Poultry Digest*, and they copy it, as you will notice, from the *Petaluma* (Cal.) *Poultry Journal*:

I have been reading about a feed at 8 cents a bushel. The man who puts it up or sells the formula to make it lives in Illinois. He says thousands of poultrymen are using it. What do you think about it?—L. S. K.

You can best find out by writing direct to the man who is the originator of this cheap food. But you must know that it is impossible to furnish a satisfactory and reliable food for fowls—a food they could live on and get fat on—for ten times eight cents. There must be some "catch" in the proposition. There is some catch in it. Write him, and then you will be better satisfied. The man who puts out this feed is a poultryman, and an old writer for the poultry press, and I am astonished that he should be guilty of any thing not on the level.—*Petaluma Poultry Journal*.

There you have it, friends, straight from the shoulder. Ten times, as they put it, is rather strong, but I do not know but it may be about right. The *Petaluma Journal* and the *Poultry Digest* can neither of them hope to get any advertising from Fred Grundy when they come out thus squarely against his plan of getting people's money. They omit to tell you that he wants \$2.00 for his little paper-covered book containing the secret of making "feed for 8 cts. a bushel," etc.; but whenever a poultry-journal comes out thus I think it ought to be patronized. If you want a weekly poultry-paper, send a dollar to the editor and thank him for his timely warning; and if you care for only a monthly, send 25 cts. for the *Poultry Digest*

and tell him the same. Let me add, however, that friend Grundy's book contains many good things. If the price were 50 cents instead of \$2.00 I should be glad to recommend it, notwithstanding its exaggeration about "8 cents per bushel," etc.

"ANIMATED EGGS;" SOMETHING ABOUT IT FROM "CAN-
NIE SCOTLAND."

Dear Mr. Root:—On page 21, June 15, under special notices by you, "animated eggs, a great discovery," you go on to describe the wonderful phenomenon of eggs rolling about on a smooth surface. The same thing has always been known in Scotland. Before up-to-date egg-testers were thought of, just near hatching time we took the eggs from under the hen or machine and put them in warm water, and those that were fertile we saw rolling about and around the dish, which is just caused by the same motion as rolling on the smooth glass.

The weather here in Scotland has not been good for honey as yet. We hope it may come soon, as the white clover is showing in fine bloom. Just a little more heat and dry weather, and it would roll in.

JAMES SMITH.

Mid Locharwoods, Rothwell, Scotland, July 5.

Thank you, friend S.; but if I understand you it has long been known that eggs would move about when put in water; but did any of our Scottish friends ever find out that eggs would move in a like manner when laid on a smooth glass? So far, nobody has shown definitely that the experiment of the egg on a looking-glass had ever before been performed.

"COMING EVENTS CAST THEIR SHADOWS BE-
FORE."

When I was eighteen years old I predicted that electricity would soon take the place of steam in transporting people from place to place; and as a proof I exhibited around at schoolhouses a home-made model of a little electric motor. From my boyish point of view I supposed we would travel by electricity in two or three years; but it took *thirty* or *forty* years. Later on I told you that automobiles would soon be more plentiful than carriages drawn by horses. This event, too, took longer than I expected, and it has not yet come to pass, except in certain localities. In 1904, when I told you about the Wright brothers, and a little later when I told you at length what I had seen with my own eyes, I said at that time that their discovery (that the air could be traversed without the aid of balloons or gas of any kind) would make a sensation in the world akin to the discovery of America by Christopher Columbus. I thought then that *before* the year 1909 we would see the air full of flying-machines. Now, it may take until 1910 for my more mature prediction to come true. But if nothing hinders, before the snow flies in the Northern States, *this year*, we shall see an excitement throughout the whole wide world that will eclipse any thing known heretofore. I need not take space here to give you the proof of what the Wright brothers and a host of others scattered almost all over the face of the earth are doing in this new lately developed gift from God. Automobiles will be comparatively out of date. Iron tracks and bridges that cost up into the millions will be no longer needed. While I dictate these words,

every daily records with startling headlines "All previous records smashed and broken." This morning we are told that our good friends the Wright brothers are left behind; but to-morrow's daily may tell us that our old friend Wilbur is "up on his nerve," and is not so much behind after all. If these boys will only be careful and not get killed, while they are almost wild with enthusiasm with the successes that are coming, we shall be very glad indeed. May God be praised that I have been permitted to live long enough to see flying-machines an assured success.

HELPING TO "REPLENISH THE EARTH," OR
CONTRIBUTING TO "RACE SUICIDE," WHICH?

Just a few days ago I happened to look out on the street in front of our home. By the way, it is a beautifully paved street of vitrified brick; and our contribution to the part of it that runs in front of our factory and through "Rootville" was about \$1700. Now, what I saw out on that street was a boy, of eight or nine years old, instructing his younger brother (about five years old) how to ride a juvenile bicycle. It was a real bicycle, fitted up just like a big one, but made for a small boy. As it was summer time I think both teacher and pupil were sweating somewhat; but before they finished their morning lesson, Ralph Boyden, the youngest, was going up street and down, making the turns all right, even though he did do some grotesque wabbling. The young teacher, his brother Wynne, was watching him, and feeling happy to think they had succeeded. While this was going on, Howard Calvert whizzed by with the speed of the wind on a new motor bicycle he has just purchased. Leland Root, the oldest grandson, was getting ready to take me out to that White Leghorn egg-farm; but a telephone message came from our "Wise doctor" (his name is Dr. Wise) saying he had an urgent call to visit a patient out in the country; and as his own machine was disabled he wanted to know if the Root family could help him out. Leland hopped out of our big Reo, and ran another machine up to the doctor's without even waiting to excuse himself. Leland's younger brother, Alan, about four (the A. I. Root of the future), has a small foot-power automobile. While this was going on, little Jean (the "girl baby" over at our home) was showing her grandpa her newly acquired tricks, and letting him know how much she could talk. Katherine Root, over at the other home, was entertaining the family with her bewitching smiles. The two other girls, Mildred Calvert* and Helen Boyden, were off with our Mr. A. L. Boyden on a vacation trip to Niagara Falls with a new automobile of their own. As I took in the situation that summer morning I said to Mrs. Root, "These boys

*It is not the boys only who take to automobiles; for Miss Mildred, not quite fourteen years old, runs her father's Reo runabout very skillfully; and when he was in California she helped all Rootville to get to church and Sunday-school and back.

Continued on page 20, advertising.

Are You a Fruit-grower?

If you are, it will pay you to investigate Michigan. The fruit orchards of this State have made the growers independent in the past few years.

The Cherry Crop Alone---

Brought more than a MILLION DOLLARS to the growers this season, and there was a demand for ten times more than was produced. Cherries yield fabulous crops in the great MICHIGAN FRUIT BELT.

We Have the Peaches too.

The peach orchards of Michigan will bring more millions into the State, for the 1909 crop is more than good, it is splendid.

General Farming Pays---

In Michigan. It is not all fruit; the potato crop this season will be the best in years, and last year's crop put Michigan second in the list of all the States. Hay, oats, corn, rye, wheat, barley, red clover, and

White Beans Beat the World---

In Michigan. You can get wild land that will grow any of these crops at from \$5 to \$15 and \$20 per acre NOW. Next year you will pay more. It's worth more. Take advantage of the

Home-seeker Excursions---

Via the Pere Marquette this Fall, and see these things for yourself. Illustrated booklet sent on request to either

W. C. TOUSEY, D. P. A.,
428 Madison St.,
Toledo, Ohio.

or
H. F. MOELLER, G. P. A.,
Detroit, Mich.

W. E. WOLFENDEN, G. W. P. A.,
206 South Clark St.,
Chicago, Ills.

BANKING BY MAIL

4%

Money deposited with us is secure, and works for you continually. Our perfect system of banking BY MAIL brings this opportunity to your door.

The Savings Deposit Bank has a capital and surplus of \$70,000, and assets of over \$800,000. Its policy is conservative; its affairs are ably managed by capable and successful business men.

Deposits of \$1.00 and upward accepted, on which we pay a yearly interest of 4 PER CENT, compounded semi-annually. Send currency in registered letter, your own check, or by post-office or express money-order.

**Write for the
Booklet Today**

Resources
\$800,000

Established
1892

**THE SAVINGS DEPOSIT
BANK COMPANY**

MEDINA, OHIO

THE BEST LIGHT



MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

I'll Save You \$50 On a Manure Spreader If You'll Let Me

This is just a little ad—but a postal will bring my **Big Book**—and give you my \$50.00 Saving Price and Special Proposition. You can save as much answering this little advertisement as if it covered a page.

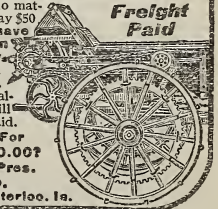
My Spreader positively will do better work and last longer than any Spreader made—no matter what the price—so why pay \$50 more? 20,000 farmers have stamped their **C. K.** on my spreader and money-saving price. My Special Proposition will interest you.

Just a postal addressed to Calloway of Waterloo, Iowa, will bring you everything postpaid.

Will You Pay a Penny For The Postal and Save \$50.00?
Address **Wm. Calloway, Pres.**

WM. CALLOWAY CO.
1689 Calloway Sta. Waterloo, Ia.

**Freight
Paid**

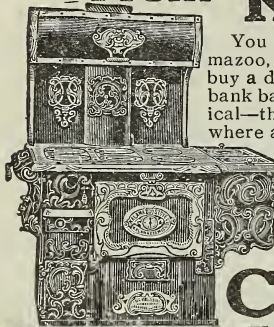


The A B C of Bee Culture

A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, \$1.50 postpaid; German edition, \$2.50.

THE A. I. ROOT CO., - Medina, Ohio.

Here's Something New From Kalamazoo



You can save enough real money in getting a Kalamazoo, to buy most of your fuel—pay your taxes, buy a dress or suit of clothes or materially increase your bank balance. You get the best made—the most economical—the most satisfactory stove or range to be had anywhere at any price. With an actual cash saving of from \$5 to \$40 on your purchase. Hundreds of thousands of satisfied users have told us this is true.

We make it easy for any responsible person to own a Kalamazoo. We are the *manufacturers*. You get lowest factory prices, 360-days' approval test, and our convenient terms. Take your choice—

Cash or Credit

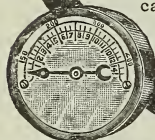
Write for Catalog No. 416 and special terms. It gives you all the necessary information about buying and using a good stove or range. Compare our prices and quality with others, prove for yourself what you save in buying a Kalamazoo for cash or on time. *Freight prepaid. Safe delivery guaranteed.*

Kalamazoo Stove Co., Mfrs.

Kalamazoo, Mich.

**"A Kalamazoo
Direct to You"**

TRADE MARK REGISTERED



This Oven Thermometer saves fuel and makes baking easy.



15 Cents a Rod

For a 22-inch Hog Fence; 16¢ for 26-inch; 19¢ for 31-inch; 23 1-2¢ for 34-inch; 27¢ for a 41-inch Farm Fence, 50-inch Poultry Fence 37¢. Lowest prices ever made. **Sold on 30 days trial.** Catalog free. Write for it today.

**KITSELMAN BROS.,
Box 21, MUNCIE, IND.**

The Awl
For All

Save the money
you pay the harness man
by using **Myers' Lock
Stitch Awl**. It stitches both
sides like a sewing machine and
mends harness, saddles, shoes, fur coats,
robes, canvas, gloves, carpets, etc., perfectly.

Something constantly needed, always ready for use and one of the handiest tools imaginable. Price prepaid only \$1.00. Booklet C Free. Write today, Agents Wanted.

G. A. MYERS CO., 6537 Woodlawn Ave., Chicago



**MAKE YOUR OWN
REPAIRS**

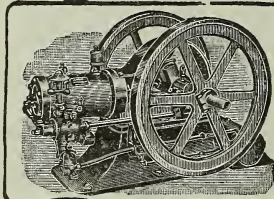
CHEAPER FARM POWER

For the price of a good horse you can buy an ideal farm engine that will operate Feed Grinder, Cutter, Saw, Pump, Corn, Separator, Washing Machine and other machines to which belt can be attached. It eats no corn, does not get sick or die, can be moved whenever you wish, is always ready and eager to work.

A Star Gasoline Engine will cut out drudgery, save the tired back, and make life a pleasure. Made with standard tank, pump cooled, or hopper cooled.

Send for prices and illustrations and learn why the "Star" is a money-maker and time saver.

**The Star Manufacturing Co.,
Box 514, New Lexington, Ohio**



**The
STAR
A Heavy,
Standard
High-
Grade
Gasoline
Engine**

FIX YOUR ROOF

5c Per Square.—We will guarantee to put any old leaky, worn-out, rusty, tin, iron, steel, paper, felt or shingle roof in perfect condition, and keep it in perfect condition for 6c per square per year.

Roof-Fix

The Perfect Roof Preserver, makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our free roofing book tells all about it. Write for it today.

The Anderson Manufacturing Co., Dept. 24, Elyria, Ohio



The Rochester Radiator will

SAVE HALF YOUR FUEL

or give you double the amount of heat from the same fuel, if you will give it a trial, or we will refund the money paid for it. Write for Booklet on heating homes.

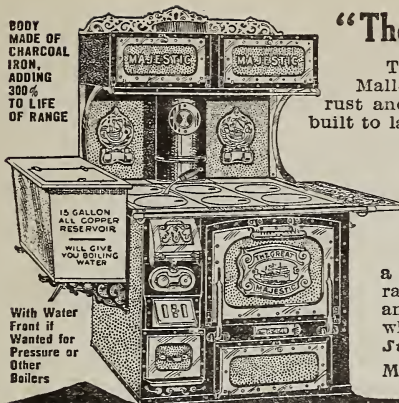
**ROCHESTER RADIATOR CO.
50 Furnace St., Rochester, N.Y.**

**Prices from
\$2 to \$12**

**For hard or
Soft Coal
wood or gas**

**Fits any
Stove or
Furnace**

BODY
MADE OF
CHARCOAL
IRON,
ADDING
300%
TO LIFE
OF RANGE



With Water
Front if
Wanted for
Pressure or
Other
Boilers

"The Range with a Reputation"

They're built on honor of the best materials, Malleable and Charcoal Iron. They won't rust and you can't break them because they're built to last.

The Great and Grand **MAJESTIC** Malleable and Charcoal Iron **RANGE**

has a big boiler right close to the fire—heats water in a jiffy. Air-tight joints and pure asbestos lining make a perfect baker with little fuel. The best range money can buy. Made in all sizes and styles and sold by dealers everywhere. Write for free booklet: "The Story of Majestic Glory"

Majestic Mfg. Co., Dept. 13 St. Louis, Mo.

Read His Letter

Read of the economy and profit in this farmer's potato-digging,—how he gets every potato in the field,—how he avoids loss from scarred and crushed potatoes,—how he has made the work easy and fast.



It Tells You how the **Acme Hand Digger**

ATTACHMENT

proved out under hard, practical actual field use:

Potato Implement Co., Traverse City, Mich. Gentlemen—Two years ago I bought one of your Acme Hand Potato Diggers and after giving it a short trial in the field, my sons, who were digging the potatoes, were so pleased with the Acme Digger that I now have five in use on my farm.

The Acme is just the digger we needed. Unlike the machine diggers it digs clean, gets every potato in every hill, doesn't scar the stock, and is not bothered by the vines. The men work easily, yet quickly, and don't get so tired as with ordinary fork or hook digging.

I know from my own experience that the Acme Digger does better, easier and cheaper work than any other digger I have seen, and the best recommendation I can give anyone is that I continue to use it on my own farm.

I am, yours truly,
F. LAUTNER, Leelanau County.

Send \$1.00 Today. Let the Acme Attachment prove itself to you. Let it prove that your dollar is better than \$100 investment in other diggers—that it will dig potatoes better and more economically—that it is the digger you have been waiting for. *Sent prepaid by express.* Money returned if you had rather have it than keep the digger. Pamphlet and Potato Book free on request. Send now. Address Box 520,

Potato Implement Co., Traverse City, Mich.



IDEAL ALUMINUM LEG BAND

To Mark Chickens
CHEAPEST AND BEST
12 for 15¢; 25—25¢; 50—40¢; 100—75¢.
Sample Band Mailed for 2¢ Stamp
Frank Myers, Mfr., Box 69, Freeport, 11

CHEAP HEN-FOOD



Is green bone fresh cut. Rich in protein and all other egg elements. Its egg producing value is four times that of grain. The eggs are more fertile, chicks more vigorous, fowls heavier. This makes green bone cheap food.

Mann's Latest Model Bone Cutter.

Cuts all bone, meat and gristle. Never clogs. 10 DAYS FREE TRIAL. No money in advance. Cat'l'g free.

F. W. MANN CO., Box 37, MILFORD, MASS.

Rider Agents Wanted



in each town to ride and exhibit sample 1910 model. Write for Special Offer.

Finest Guaranteed
1910 Models **\$10 to \$27**
with Coaster-Brakes and Puncture-Proof tires.
1903 & 1909 Models **\$7 to \$12**
all of best makes

500 Second-Hand Wheels
All makes and models,
good as new..... **\$3 to \$8**

Great Factory Clearing Sale.
We **Ship On Approval** without a cent deposit, pay the freight and allow

TEN DAYS' FREE TRIAL.
Tires, coaster-brakes, parts, repairs and sundries, half usual prices. Do not

buy till you get our catalogs and offer. Write now.
MEAD CYCLE CO., Dept. H113 Chicago



IN SUNNY VIRGINIA

\$1,650.00 BUYS THIS BEAUTIFUL HOME

and 40 acres of best fruit and general farming land, including good barn, corncrib, tool shed and chicken house, all new. Rich soil, fine climate, good markets, abundant water, excellent neighbors and best schools.

OTHER LANDS \$10. PER ACRE & UP.

Cheap Excursions Twice a Month.

Sit right down and write for beautiful illustrated booklet, list of farms, etc., to

F. H. LABAUME, Agri. and Indl. Agt.
Dept. M. 11. Norfolk & Western Ry., Roanoke, Va.

Queens by Return Mail.

We have a good stock of nice young laying queens ready to mail upon receipt of order, and would be pleased to supply your wants. Our queens are noted for their prolificness and honey-gathering qualities, being bred from the best honey-gatherers obtainable, and mated with **SELECTED DRONES**.

PRICES.		
Untested.....	1	6
Warranted.....	\$.75	\$4.25
Tested.....	1.00	5.00
Tested.....	1.50	
Select Tested.....	2.50	12
		\$8.00
		9.00

If you wish select untested or select warranted queens, add 25c each, \$1.00 for six, or \$2.00 for 12, to the list price. All cash orders booked and filled in rotation. Price list upon application.

W. W. CARY & SON, Lyonsville, Massachusetts.

MILLER'S SUPERIOR ITALIAN QUEENS

By return mail after June 1, or your money back. Northern bred from best red-clover working strains in U. S. No better hustlers; gentle, and winter excellent. Untested, from my three-banded *Superior Breeder*, \$1.00; six, \$5.00; 12, \$9.00. After July 1, 75c; six, \$4.00; 12, \$7.50. Special prices on 50 or more. Safe arrival and satisfaction guaranteed. Circular free.

ISAAC F. MILLER, Reynoldsville, Pa.

Simmins' Pedigree Italian Queens

Warranted 6 months. See back of GLEANINGS, May 15 issue. Nothing like it in the bee-world.

Sam'l Simmins, Queenland, Heathfield, Sussex, England

ITALIAN QUEENS By RETURN Mail

Red-clover and Goldens, 60 cts. each; guaranteed, 90 cts.; tested, \$1.15. See list. Leaflet "How to Introduce Queens," 15c; "Rapid Increase," 15c; copy of both, 25c.

E. E. MOTT, GLENWOOD, MICHIGAN

CARNIOLANS AND BANATS OUR SPECIALTIES

Carniolans.—This is our 24th year in breeding this race of bees; and by careful selection we claim to have the finest "Line-bred"

Carniolans to be had. They are very gentle, hardy, prolific, finely marked, great honey-gatherers, and builders of white combs.

Banats.—This new race of bees from Hungary, Austria, looks like the Carniolan, though darker in color; are gentle, hardy, great honey-gatherers, and builders of white comb; do not breed out of season and use up their honey when none is to be had; are not inclined to swarm, even with their hives boiling over with bees, but keep right at work while other races are swarming. We consider this race of bees a model one for producing fancy comb honey.

Mating yards miles apart. No foul brood here.

One untested queen, \$1.00; select untested, \$1.25; tested, \$2.00; select tested, \$3.00; breeding queen, \$3.50; select breeding queen, \$7.50; extra select breeding queen, \$10.00; best imported, \$5.00; virgin queens, 40c each; three for \$1.00. One L. frame nucleus, \$2.00; two-frame, \$3.00; three-frame, \$3.50. Add price of queen wanted to nucleus.

F. A. Lockhart & Co., Lake George, N. Y.

QUEENS - QUEENS

Try our high-grade Red-clover and beautiful Golden queens. They will not disappoint you. Queens by return mail. Prices: Select untested, \$.75; six, \$4.00; doz., \$7.50. Tested, . . . 1.00; " 5.50; " 10.00. Select tested . . 1.50; " 8.00; " 14.00. Send for circular, and price in quantity lots.

Sires Brothers & Co., North Yakima, Wash.

Swarthmore's Pedigreed Goldens

Swarthmore Apiaries, Swarthmore, Pa.

Queens of

Moore's Strain of Italians

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says, "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen." My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

Reduced prices: Untested queens, 75 cts. each; six, \$4.00; dozen, \$7.50. Select untested, \$1.00 each; six, \$5.00; dozen, \$9.00.

I am now sending queens by return mail.

Safe arrival and satisfaction guaranteed. Descriptive circular free. Address

J. P. Moore, queen-breeder, Rt. 1, Morgan, Ky.

QUEENS

of the Robey strain of 3-banded Italians during 1909. Warranted queens the remainder of the season, 60 cts. each in any quantity. Satisfaction, or money refunded.

L. H. ROBEY, Worthington, W. Va.

CALIFORNIA QUEENS

Now is the time to requeen so you will have some assurance of strong colonies next year. Nice, large, and prolific daughters of the best queens we could select out of the 1500 colonies we run this season. . . .

GOLDENS AND LEATHER-COLORED ITALIANS.

Untested, each, \$1.00; six, \$5.00; dozen, \$9.00.

Tested, each, . 1.50; six, 8.00; dozen, 15.00

Prices quoted on lots of 50 or more.

MERCER & WURTH, VENTURA, CALIF.

Restock Now! The original HARDY GOLDENS are the best bees on earth if you consider *all* points. A great favorite in the North—yes, in fact everywhere. *Beauty, honey, hardiness.* Order in English, French, German, or Spanish. Price (entire season) \$1.00; tested, \$2.00. Also clover, Caucasians, and Carniolans.

CHAS. OSCAR FLUHARTY,

New Martinsville, W. Va.

GOLDEN - ADEL - QUEENS

Golden Italian and Leather-colored Italian, Imported Carniolan, and Caucasian queens. A full line of bee-keepers' supplies. Send for price list. Address

Chas. Mondeng, 160 Newton Av. N., Minneapolis, Minn

300 Choice QUEENS

of the celebrated Highland Farm Strain of hardy Northern-bred three-banded Italians ready for immediate delivery at following prices: Untested, 75c; 6, \$4.00; 12, \$8.00. Tested, \$1.00 each; \$10.00 per dozen. These are not cheap queens, but the best that the queen-breeder's skill can produce. There is none better at any price. Satisfaction guaranteed. Send for circular.

J. E. HAND, BIRMINGHAM, ERIE COUNTY, OHIO

W.H.Laws

is again on hand with his famous stock of bees and queens for the season of 1909. Fine well-bred queens are his specialty; and in all the queens mailed during the past 18 years there is not a displeased customer that I know of. On the other hand, letters of praise come from every source. Mr. Wm. Hughes, of Washington, D. C., writes that he has been handling queens for the past twenty years, and he has never found any that equal or please him so well as the two dozen he bought of me last season. I can and do mail queens every month in the year, California and Cuba taking over 100 in the past month of December. I will mail queens from now on at the one price of \$1.00 each or 6 for \$5.00. Breeding queens, each, \$5.00. Write for prices on quantity lots. Address **W. H. LAWS, Beeville, Bee County, Texas.**

IMPROVE your STOCK

by introducing some of our Famous Long-tongued Italian Red-clover Honey-queens. We have been breeders for 23 years, and have developed a strain of bees that some seasons produce nearly 100 lbs. of surplus per colony from red-clover alone.

Untested queens from June to October, 75 cts. each; tested, \$1.25 each; fine breeders, \$10.00 each. Satisfaction guaranteed in every respect.

FRED LEININGER & SON, - DELPHOS, OHIO

Warranted Queens

75 cts.; dozen, \$7.00. Golden strain; gentle; fine workers. Cap and finish up honey equal to any. Plenty of queens ready to mail.

J. B. Case, Port Orange, Fla.

Swarthmore's Pedigreed Goldens

Swarthmore Apiaries, Swarthmore, Pa.

CHOICE QUEENS

Golden and Red-clover Italians and Gray Carniolans

Select untested, 1, 75 c.; 6, \$4.00; 12, \$7.50

Tested, . . . 1, \$1.00; 6, 5.50; 12, \$10.00

Select tested and breeders, . . \$2 to \$4 each

Chas. Koeppen, - Fredericksburg, Va.

Superior QUEENS!

Carefully reared, leather-colored Italian queens; extra good stock; no disease. Guaranteed to give satisfaction. One, 70c; 6, \$3.75; 12, \$6.50; 20 or more, 50c each, till Nov. 1. **S. F. TREGO, Swedona, Ills.**

QUEENS!

And nothing but Italians. An improved superior strain is what **QUIRIN-THE-QUEEN-BREEDER** raises. Stock is Northern-bred and hardy. We winter our five yards on summer stands with practically no loss. Some of the largest honey-producers of the West started with our stock. Free circular and testimonials.

Prices of Queens after July 1	1	6	12
Select queens	\$.75	\$4.00	\$7.00
Tested queens	1.00	5.00	9.00
Select tested queens	1.50	8.00	15.00
Breeders	3.00	15.00	
Golden five-band breeders .	5.00		
Two-comb nuclei, no queen	2.25	12.00	22.00
Three-comb nuclei, no queen	3.25	18.00	32.00
Full colonies on 8 frames .	5.00	25.00	

QUEENS NOW GO BY RETURN MAIL

Safe arrival and pure mating guaranteed. We employ 400 to 500 swarms. Can furnish bees on L. or Danz. frames. Add price of whatever queen is wanted to nuclei or colony. No order too large, and none too small. Over twenty years a queen-breeder.

Address all Orders to

Quirin - the - Queen - Breeder
Bellevue, Ohio

Golden and Red-clover Italian Queens

My queens are large and prolific. Their workers are hardy and good honey-gatherers. Give them a trial. Untested, one, \$1.00; six, \$5.00. Select untested, one, \$1.25; six, \$6.50. Select tested, \$2.00 each. All orders filled in rotation.

No nuclei or colonies for sale this season.

WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

Swarthmore's Pedigreed Goldens

Swarthmore Apiaries, Swarthmore, Pa

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Comb honey in car lots or less.
J. E. PRYOR, Plateau City, Colorado.

FOR SALE.—New alfalfa honey, best quality, new cans and cases; 7½c. H. E. CROWTHER, Parma, Idaho.

FOR SALE.—Fine quality of well-ripened raspberry-milkweed honey, in new 60-lb. cans (2 in box) at 8 cts. f. o. b. here. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Choice light-amber and golden honey in 60-lb. cans at 7 to 8 cents. Sample 6 cents, deducted from order. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Clover, basswood, and buckwheat comb and extracted honey; well refined. Write for particulars. E. L. LANE, Trumansburg, N. Y.

FOR SALE.—Four barrels of clover and honey-dew honey for manufacturing, at a low price.
Address JOHN A. THORNTON, Lima, Ill.

HONEY FOR SALE by members of the Michigan Beekeepers Association. For free annual booklet giving names and addresses of members address the Secretary, E. B. TYRREL, 230 Woodland Ave., Detroit, Mich.

FOR SALE.—Choice basswood and buckwheat honey in new kegs holding 155 lbs., at 7 cts. per lb. No honey-dew in this honey, nor bee disease.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—Extracted honey, clover, basswood, and buckwheat, in 60-lb. cans and 225-lb. kegs; and comb honey and beeswax. Prices on application.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Two tons of clover extracted honey, new crop; also over a ton of hearts'-ease honey, 1908 crop. State quantity and kind wanted, and make me an offer.
J. H. WAGNER, Beatrice, Neb. Box 305.

FOR SALE.—Clover and raspberry honey mixed in new 60-lb. cans. Well ripened and of fine flavor. Sample, 10 cts. Price of sample may be deducted from order.
JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—25,000 lbs. water-white bellflower honey, guaranteed equal in quality, body, or color to any in United States; either in sections 4x5, or the same strained in 5-gallon cans, f. o. b. in New York; delivered in November or December.
Address FRANK REIMAN, Cauto, Cuba.

FOR SALE.—My new crop white-clover and basswood extracted honey, put up in brand-new 60-lb. cans; two cans to a case, at 9½ cts. per lb. by case of 120 lbs., or 10 cts. per lb. for single 60-lb. can, F. O. B. Flint; cash with order.
LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—New crop of fancy white-clover and basswood extracted honey. Ripe, rich, and thick, and free from honey-dew. Those who use only strictly fancy goods should write us. Also 1909 crop of fine buckwheat extracted honey, in 60-lb. cans and barrels. Samples 10 cents, which will be deducted from first order.
ALBERT G. HANN, Pittsstown, N. J.

FOR SALE.—Our crop of clover comb honey, in 4x5 plain sections; also extracted in the following flavors: Clover, raspberry, willow herb, and a raspberry-basswood blend. A little clover of an amber color, in 60-lb. cans, at 9 cts. Ask for special price in 10-case lots, or more. Sample free. We are specialists; you get the very best by buying of us. Have been a reader of GLEANINGS since July 15, 1876, and are up to date in all modern methods of honey production. No honey-dew in our location this year.
E. D. TOWNSEND & SONS, Remus, Mich.

FOR SALE.—Raspberry honey, new crop, left on the hives until thoroughly ripened, thick, rich, delicious, has raspberry flavor, stored in bright, new, round, jacketed 60-pound tin cans, with flat cover and wire bail. Ten cents a pound—\$6.00 for a can. Sample ten cents.
W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—Our 1909 crop of fancy extracted honey now being gathered at our Northern Michigan apiaries. It is from alsike clover, raspberry, and willow-herb. Dead-ripe, clear, extremely thick and waxy, and of exquisite flavor. Is in five-gallon 60-lb. cans, two in a box. Price 9 cts. per lb., f. o. b. on G. R. & I. R'y, near Lake City, Mich. I shall have some fine fall honey later from the home yard, gathered from celandine and buckwheat. Sample of the Northern Michigan or white honey ready now, free. None of the amber honey is extracted yet, but will be ready in about two weeks from this date, August 25.
O. H. TOWNSEND, Otsego, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 South Water St., Chicago, Ill.

WANTED.—Five hundred cases fancy white-clover New-York State comb honey; 24 to case.
M. H. TWEED & CO., Pittsburgh, Pa.

WANTED.—White honey. State kind, how put up, and lowest cash price.
CHAS. KOEPPEN, 1508 Main St., Fredericksburg, Va.

WANTED.—Fancy comb and gilt-edged clover extracted honey. Can furnish shipping-cases and cans cheap in part payment if desired.
B. WALKER, Clyde, Ill.

WANTED.—To buy for cash, a quantity of extracted honey. State price, kind, and quantity. Interested in car of alfalfa.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—White-clover comb honey, also your orders for bee supplies. "Peirce service—Root quality" will please you. Free catalog.
EDMUND W. PEIRCE, Zanesville, Ohio.

Wants and Exchanges

WANTED.—Refuse from the wax-extractor, or slum-gum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To correspond with parties where there is a good crop of good apples.
F. W. DEAN, New Milford, Pa.

Real Estate

FOR SALE.—Ten acres, well improved, near town; fruit, poultry, bees; health resort.
Address Box 344, Mena, Ark.

FOR SALE.—Greenhouses and four acres of ground. Combine that with bee culture and make money. Price and terms reasonable.
THE SECOR COMPANY, Forest City, Iowa.

FOR SALE.—On account of age—my home, 2½ lots—bee-house, holding 48 hives with fixtures for same—and 12 colonies of bees—honey, hives, and 3-roomed poultry-house; both plastered; abundance of fruit.
JANE M. KELLEY, Holloway, Mich.

FOR SALE.—Well-improved five acres, all kinds bearing fruit; 6-room house; out-houses, good water, 60 stands of bees and fixtures; good location for bees and chickens. On Colfax interurban at Bowsler station, ¼ mile from city limits of Des Moines. Price \$3000—half cash.
MILO SMITH, Berwick, Iowa.

Help Wanted

We still need a good salesman, a practical bee-keeper. THE SNYDER BEE & HONEY CO., Kingston, N. Y.

Bees and Queens

FOR SALE.—Red-clover queens, untested, 50c; tested, \$1.00. Hybrids 30c. M. C. EXCELL, Wellsville, Ohio.

FOR SALE.—Italian queens; untested, 50 cts.; select, 75 cts.; tested, \$1.00. ROBT. B. SPICER, Wharton, N. J.

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

FOR SALE.—85 colonies of bees in movable-frame hives; good condition. A. J. CUTTS, Barachias, Ala.

FOR SALE.—A few dozen choice red-clover queens, tested and warranted pure, \$1.00 each, by first mail. F. H. MCFARLAND, Hyde Park, Vermont.

FOR SALE.—An apiary of 222 colonies with complete outfit for running the same. Good location. J. W. KALFUS, Surrey, Cal.

FOR SALE.—Italian queens, untested, 75 cts.; tested, \$1.00; colony, eight frames and queen, \$5.50. E. M. COLLYER, 75 Broadway, Ossining, N. Y.

FOR SALE.—Northern-bred red-clover queens. Untested, 75 cents; tested, \$1.00. E. S. WATSON, Madison, Maine. R. F. D. No. 2.

FOR SALE.—275 colonies of nearly pure Italian bees in dovetailed hives. Bees are situated in sweet-clover belt of Alabama. M. C. BERRY, Morganville, Ala.

FOR SALE.—125 stocks of bees; excellent condition; filled with honey. Great offer. Write for particulars. L. M. GIES, St. Mary's, Pa.

Extra-fine queens of the red-clover strain, bred by the originator. Fine queens for breeders' use, a specialty. F. J. WARDELL, Uhrichsville, Ohio.

FOR SALE.—Fine golden Italian queens by return mail. Untested, 50 cts.; tested, \$1.00; select tested, \$1.25. D. T. GASTER, Randleman, N. C. Rt. 2.

FOR SALE.—Hardy goldens and Adel queens; Italians; fine honey-gatherers. Virgins, 40 cts.; untested, 75 cts.; tested, \$1.50. EDWA. REDDOUT, Baldwinville, N. Y.

FOR SALE.—30 colonies Italian bees in 8-frame sectional hives, 53 comb honey supers, 18 twin mating nuclei. Equipment for comb honey. Price \$1.35. For particulars address FRED SCHRATER, Langdon, Mo.

FOR SALE.—Over 300 stands of bees—a bargain; combs built on wired foundation; can deliver them on board cars. Bees are located at Shaffton, Ia.; postoffice, Camanche, Ia. A. L. DUPRAY.

5000 three-band Italian queens ready to mail March 1. Untested, 75 cts.; tested, \$1.00; breeders, \$5.00. Ask for prices in large quantities. W. J. LITTLEFIELD, Route 3, Little Rock, Ark.

FOR SALE.—1000 colonies of bees with fixtures; run principally for extracted honey. DR. GEO. D. MITCHELL & Co., 340 Fourth Street, Ogden, Utah.

FOR SALE.—Three-banded Italian queens by return mail, reared from the best red-clover stock; untested, one, 75 cts.; six, \$4.00. WM. I. F. HOFFA, Temple, Pa. Rt. 1.

Missouri-bred Italian queens by return mail. Select untested, 75 cts.; tested, \$1.00; breeders, \$3.00; virgins, 40 cts.; dozen lots 20 per cent discount. L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—175 swarms of bees at a bargain if taken soon; 8 and 10 frame 2-story hives with Hoffman frames, built from wired foundation. If interested call on or write. W. H. RAILS, Orange, California.

FOR SALE.—75 col. bees, 75 sets ext. combs in hive bodies, 100 hives, 175 comb-supers, 1 new Barnes saw, 1 new 4-fr. extractor, 1 wax-press, etc. No disease. Will take \$300. M. M. TRAVIS, Marshfield, Wis.

Two hundred and twenty-five lbs. comb honey gathered by one colony of our bees. Don't fail to try some of our wonderful honey-gatherers; average queen, 65 cents; selected, 75 cents; tested, \$1.00; choice tested, \$1.25. G. RUTZAHN, Biglerville, Pa.

FOR SALE cheap.—12 hives of bees, cross between golden Italians and gray Carniolans. No trouble whatever from swarming. Produce surplus comb honey every year. Never had any disease. Colonies all strong. Must sell at once. Apply to E. M. BAKER, Farm School, Pa.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Bannat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free. W. H. RAILS, Orange, Cal.

Poultry

A. I. Root's Bee-goods, Poultry-supplies, Seeds, etc. STAPLER'S, 412-414 Ferry St., Pittsburgh, Pa.

R. C. Brown Leghorns; cockerels, \$1 and \$2 each. Unt. Italian queens by return mail, 60 cts.; tested, 75 cts.; select tested, \$1. Fine ext. honey, 8 cts. per lb. GEO. J. FRIESS, Hudson, Mich.

For Sale

FOR SALE.—Bee-supplies at factory prices. D. COOLEY, Kendall, Mich.

FOR SALE.—New unhulled white-sweet-clover seed, 15 cts. per lb.; postage, 8 cts. per lb. extra. ANTON G. ANDERSON, Holden, Mo.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., successors to W. P. Smith, Penn, Miss.

FOR SALE.—A scholarship, "Railroad Engineering Course" in American School of Correspondence. Also a civil-engineering reference library published by the school. The two will be sold separately or together. C. M. HARRIS, Jefferson, Schoharie Co., N. Y.

Bee-keepers' Directory

FOR SALE.—Bees, queens, and honey. Write to A. H. KANAGY, Kishacoquillas, Pa.

Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of Root's goods. Save freight. Write.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send card to T. F. BINGHAM, Farwell, Mich.

Golden and red-clover Italian queens. See my other adv't in this issue. WM. A. SHUFF, 4426 Osage Ave., Philadelphia.

Italian queens from direct imported mothers, red-clover strain, \$1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Conn.

FOR SALE.—High-grade red-clover and Golden queens. Safe arrival and satisfaction guaranteed. One, 75 cts.; six, \$4.00; dozen, \$7.50. SIREBROS. & Co., North Yakima, Wash.

Golden yellow Italian queens my specialty; 1909 price list ready. Safe introducing directions.
E. E. LAWRENCE, Doniphan, Mo.

For your address on a postal card I will send you valuable information pertaining to queen culture. Write to-day.
J. E. HAND, Birmingham, Ohio.

QUEENS.—Improved red-clover Italians, bred for business, June 1 to Nov. 15, untested queens, 60 cts.; select, 75 cts.; tested, \$1.00 each. Safe arrival and satisfaction guaranteed; will exchange a few queens for yellow sweet-clover seed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern bred, and hardy. Five yards wintered on summer stands without a single loss in 1908; 22 years a breeder. For prices see large ad. in this issue.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices.

A bee-keepers' meeting will be held on Friday evening, Sept. 17, at the Oregon State Fair, Salem, for the purpose of forming an all-Oregon bee-keepers' association, said association to push the foul-brood law for Oregon. At present only a few counties are protected.
Necanicum, Oregon, Aug. 10. HERMAN AHLERS.

NATIONAL CONVENTION.

The next annual meeting of the National Bee-keepers' Association will be held at Sioux City, Ia., Sept. 22, 23. Car fare of 1½ round trip for 200 miles each way. Board and meals cared for by Sioux City Y. M. C. A. Lodgings not over 50 cts., and meals from 10 cts. up as ordered. Full program in next number of GLEANINGS.
N. E. FRANCE.
Platteville, Wis., July 27.

The Pennsylvania State Bee-keepers' Association will hold its sixth annual convention, Sept. 8 and 9, in the P. O. S. of A. Hall, near the court-house, Lebanon. Headquarters will be at the Eagle Hotel, where the rates to bee-keepers will be \$1.50 per day when two persons occupy the same room.

FIRST SESSION, SEPT. 8.

1 P.M. Business. President's address.
"Alfalfa as a Honey-producer," by C. N. Greene, of Troy, Pa.
"Bee-keeping in New Mexico," by G. H. Rea, of Reynoldsville, Pa., who has spent the summer at Mesilla Park.

SECOND SESSION, 7:30 P.M.

Address of welcome, by Dr. Henry Houck, Secretary of Internal Affairs, of Lebanon, Pa.
Response by the President.
"Origin and Progress of the Lebanon Bee-keepers' Association," by E. L. Brown, of Lebanon, Secretary.
"Fruits and Honey," by Mrs. H. K. Beard, of Manheim.
"Apiculture in Juniata County and Vicinity," by Professor H. C. Klinger, Superintendent of the public schools of Juniata Co., of Liverpool, Pa.
"The Distribution of Brood Diseases in Pennsylvania," by Dr. E. F. Phillips, of the Bureau of Apiculture, Washington, D. C.

THIRD SESSION, 9 A.M., SEPT. 9.

"Accomplishments and Aims of the Philadelphia Bee-keepers' Association," by F. Fahman, of Philadelphia, Pa.
"Qualities to be Secured in Queen-breeding," by P. G. Snyder, of Secane, Pa.
"Extracted Honey," by Harold Hornor, of Jenkintown, Pa.
"Conditions of Honey Production in Lebanon and Lancaster Counties," by H. K. Beard, Manheim, Pa.

FOURTH SESSION.

At apiary of Wayne Schilling, Lebanon. Leave the court-house at 1 P.M., taking West Lehman St. car.
Demonstrations will be given in the shook method, by Prof. H. A. Surface and Wayne Schilling.
Circumstances favoring, a "queen-hunting contest" will be held.
Exhibits of bees, apicultural products, and supplies are invited. Bring your friends. All are welcome.

Continued from page 554.

will no doubt run flying-machines through the air, some time in the near future. We may not live to see it all, but it is coming."

Well, that paves the way to tell you that the picture on our front cover is that of Miss Helen Boyden, two years old. The principal reason why I suggested putting it on the cover of GLEANINGS was because it shows the possibilities of up-to-date photography.

Now, I have not given you this sketch to boast of our grandchildren; but I have given it to point a moral. There was a period in my life, say when I was about twenty years old, when I entertained the idea (I hope it was for only a short time) that I could have a better time, and get more fun out of life, by not getting married at all. And there are, perhaps, hundreds of good friends (God forbid that there should be thousands) who look on these pages who have never married, and perhaps do not expect to. Now, please excuse me a moment. Where would GLEANINGS have been, and where would have been the A B C book, and the Home papers which so many of you have extravagantly praised, had I decided to go through life an unmarried man?

The probability is that I would have *continued* keeping away from places of worship and Christian people had it not been for my patient and indefatigable good wife. Of course, she does not see this or she would rule it out in a minute; but while her back is turned I wish to tell you all once more that she not only attended church faithfully, and fixed up the children and got them into the Sunday-school, but she did every thing she possibly could to build up her home on a solid foundation, the rock Christ Jesus. The dear woman did not know (like thousands of other good women) what she was planning and what she was building; but God in his great mercy gave her her reward. Had I remained unmarried and missed being under the influence and untiring example of this good woman, God only knows what and where I would have been now.

I presume that I shall get some sharp criticisms after what I am going to say; but I will take the risk, for I feel that the Holy Spirit is back of me. If you, my friends, are of marriageable age, I exhort you to set about it this very day and hour to start in with some good woman to build up a home. I do not care very much how old you are, either one of you. Form a partnership and start a home. If it is too late for you to have children, go right off the first thing and get some homeless and fatherless child, and be a father or mother to it. Help make the world better. You ought to be ashamed of yourselves, especially if you profess to be Christian men and women, to stand off to one side and not lift a finger to help in this great work of caring for homeless children, and thus make the world better than it would have been had you not lived.*

*A good friend of our Home papers suggests that only parents be permitted to vote in regard to schools and local option.

May God help you to do your duty toward this great nation and this whole wide world.

TEMPERANCE.

HURRAH FOR ALABAMA!

We clip the following from the *Cleveland Plain Dealer* for August 14:

MONTGOMERY, Ala., Aug. 13.—In almost a frenzy the House members to-day made a violent assault on the sale of intoxicants of all kinds, passing the Fuller bill, beyond question the most drastic measure ever offered in the South.

By its provision no liquors can be sold, no advertisement of liquor appear in any paper or upon any billboard, no train may leave a car upon any track that contains it, no place of selling any sort of goods may be called saloon, nor the word "saloon" used. The presence of an internal-revenue license, whether liquor is found or not, is prima-facie evidence of guilt, and the proprietors may be arrested.

On notice, any place where there is frequent assembling may be raided on suspicion, and every corporation whatever must promise, when charter is issued, to refrain from bringing in liquors of any kind, violation of which will revoke license automatically.

I hope the brewers, distillers, and others, will, in view of the above, "sit up and take notice"—that is, if they have not been doing it already. May God be praised that Alabama has enough people of the stripe indicated in the above to set such a pace for the other States to follow—north, south, east, and west. Once more let us swing our hats and cheer for Alabama, and back up our cheers by rolling up our sleeves and going to work.

The opening sentence in the above extract tells us that the House members were almost in a "frenzy" to rule out intoxicants; and God knows it is time that there be a frenzy. Highway robberies and murder in many localities are on the increase. The city of Youngstown, Mahoning Co., Ohio, has had almost a carnival of murder and crime since that county voted wet. Almost every daily gives us an account of some criminal assault by drunken negroes. One such fellow, crazed by whisky and cocaine, went out on the streets of a town and actually killed toward a dozen people and wounded a good many more. He defied arrest, and "shot up the town" for several hours. Are we going to sit down calmly and permit saloons to exist while these things continue and multiply? Beautiful, bright, intelligent little girls from Christian homes are assaulted in broad daylight by drunken negroes and cigarette fiends, both white and black. Is it not time for the whole wide world to rise up in a "frenzy" of indignation and follow Alabama?

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

HONEY, COMB AND EXTRACTED.

We shall be pleased to receive offers of choice honey, both comb and extracted. If comb, give description—style of section, how cased, grade, and the price asked. If extracted, mail a sample; state quantity, how packed, and the price asked. We prefer only the best grades.

BEEWAX MARKET.

We are receiving beeswax for next season's use, and are paying 28 cents cash, 30 in trade, for average wax delivered here; one or two cents extra for choice yellow. Do not fail to mark your package so it can be identified when it reaches us. With wax coming from numerous shippers all at the same time, this is very important.

SPECIAL GOODS.

We have now passed our rush season, and are in position as we have not been for months past to make up any special goods which some patrons prefer to use. Let us know what your requirements are in this line, and we will try to accommodate you during our slack season in the weeks ahead.

SWEET-CLOVER SEED.

This has some valuable traits, as standing frost and drouth, and in some localities it is the main honey-plant. About eight to twelve pounds of the hulled seed, or fifteen to twenty pounds with the hulls on, are needed for an acre. It will grow on almost any barren hillside, but it is never a bad weed to exterminate. If it is mown down to prevent seeding, the roots will soon die out. Sow in spring or fall. In the vicinity of Salt Lake, Utah, sweet clover is the main honey-plant, and the quality of the honey is equal, in the opinion of many, to any honey in the world. The plant lives through the dry summers in Utah. See "leaflet" about sweet clover, mailed free on application.

We have on hand a good stock of choice sweet-clover seed, both white and yellow. Of the yellow we have both unhulled and hulled seed, and of the white unhulled we have a largestock. Prices are as follows:

In lots of		1 lb.	10 lbs.	25 lbs.	100 lbs.
Unhulled	White, per lb...	14c	12c	11c	10c
	Yellow " " " "	16c	14c	13c	12c
Hulled	" " " "	20c	18c	17c	16c

The prices are all subject to market changes.

Special Notices by A. I. Root.

THE DOLLAR HEN; A NEW UP-TO-DATE POULTRY-BOOK

See description of this book in our Poultry Department in this issue. In order to get it into the hands of the people, we have purchased and have on our table 100 books ready to mail. The price is \$1.00, postpaid; but we will club it with GLEANINGS, making the two only \$1.50. If you have already paid for GLEANINGS for one year or more you can have the book for an even 75 cents, postpaid. Your better way will be to send us the \$1.50 and have a year added to your present subscription. A few days ago a visitor from Pennsylvania, after looking over our establishment, threw down the price of GLEANINGS for five years. He said, as he did so, "It will save you trouble, and save me trouble too; and I am sure I want it for five years if every number contains as much valuable matter as it has contained for the last year."

Now send in your orders for the Dollar Hen; and if, after you have read the book, you do not agree with me that it is a dollar well invested, you can return the book and get your money.

KIND WORDS.

SOME KIND WORDS ABOUT THE "GREAT HEREAFTER."

Mr. A. I. Root.—I read the letters by Irving Keck and yourself. Now, in Ecclesiastes 12:7 we read, "Then shall the dust return to the earth as it was, and the spirit shall return unto God who gave it." II. Corinthians 5:1—"For we know that, if our earthly house of this tabernacle were dissolved, we have [not shall have] a building of God, a house not made with hands, eternal in the heavens." We are told that, when we have put on Christ, we have eternal life already. Mr. Moody, in speaking to his friends, told them not to mourn for him as dead; "for," said he, "I shall be more alive than ever." I for one prefer to believe this way.

Osceola Mills, Pa., Aug. 9.

SADIE S. THOMAS.

BEE-KEEPERS OF THE NORTH

BE SURE TO GET OUR PRICES ON

BEESWAX

Before selling your season's wax, or let us send you our prices for working your beeswax into

DADANT'S FOUNDATION

We can use almost an unlimited quantity of beeswax, and we are buying all the time.

During the season of 1909 we handled over 150,000 pounds of beeswax.

If your honey supply is short we can supply you with white or amber honey. Send for prices at once.

Dadant & Sons, Hamilton, Illinois

BEE-KEEPERS OF THE SOUTH

For Quick Delivery

and LOW FREIGHT send your orders for BEE-SUPPLIES to . .

**THE A. I. ROOT COMPANY, 10 VINE STREET
PHILADELPHIA, PENN.**

PHILADELPHIA is the logical business center for Eastern Pennsylvania, New Jersey, and Delaware. In addition, it has superior facilities for reaching points in the South along the Atlantic seaboard. We can ship to all such points promptly and at very low rates owing to the competition of the steamships. We have a large stock constantly on hand, and can fill the largest orders at ONCE. When you are in our city, come and see us. . .

The A. I. Root Company, Philadelphia, Penn.

Wm. A. Selser, Manager . . . 10 Vine Street

Think What a Roof Must Stand



Before you decide on *any* roofing, for *any* purpose, consider what that roof must stand. Consider the expansion and the contraction of alternating heat and cold. Think of the rotting rains of spring. Of the ice and the sliding snows that winter brings. Of the burning embers, that, in time of fire, it *must* withstand. Then send for our free book, which tells the very facts you want to know about *all* kinds of roofings.

This free book tells about roofs of shingles, tin, tar, iron—of “prepared” and other roofings.

It tells what we have learned in nearly twenty years of actual tests of these various roofings.

It tells the first cost of each—and the *after* cost—it tells the advantages of each fairly, frankly, comprehensively.

We gladly send this valuable book free, because it tells about Ruberoid roofing, too.

Since Ruberoid was invented, nearly twenty years ago, there have sprung up more than 300 substitutes.

Beware Substitutes

These substitutes have names which *sound* like Ruberoid. *Before* they are laid on roofs, they *look* like Ruberoid. But do not let these facts deceive you.

No other maker can use Ruberoid gum.

And it is this wonderful, flexible gum of ours which makes Ruberoid sun proof, moisture proof, heat proof, cold proof and weather proof.

RUBEROID

(TRADEMARK REGISTERED)

Be sure to look for this registered trademark which is stamped every four feet on the *under* side of all genuine Ruberoid. This is your protection against substitutes which many dealers brazenly sell as Ruberoid. Ruberoid is usually sold by but one dealer in a town. We will tell you the name of your Ruberoid dealer when you send for our free book.

It is this exclusive Ruberoid gum that we use which makes a Ruberoid roof so nearly fire-proof that a shovelful of burning coals thrown on the roof will not set it afire.

A Ruberoid roof is practically a *one-piece* roof. For Ruberoid comes to you in yard wide rolls, the seams and laps of which are cemented together in one solid piece.

You can easily lay a Ruberoid roof yourself. Or you can have it laid at small expense. No skilled labor is needed. The average cost of laying will run from twenty to eighty cents a hundred square feet—according to the roof.

Ruberoid in Colors

Ruberoid also comes in attractive colors—Red, Green, Brown. These color roofings are made under our exclusively owned U. S. and foreign patents. The colors of Ruberoid roofing do not

fade or wear away. For they are a *part* of the roofing—a permanent-color roofing, fine enough for the costliest home.

To get the free book telling all about shingle, tin, tar, iron, Ruberoid and other roofings, simply address Dept. 34 F The Standard Paint Company, 100 William St. New York.

THE STANDARD PAINT COMPANY, Bound Brook, N. J.

New York, Chicago, Kansas City, Boston, Philadelphia, Atlanta, Memphis, Denver, San Francisco, Montreal, London, Paris, Hamburg

GET A GOVERNMENT FARM BEFORE THEY ARE ALL GONE

You get from Uncle Sam either a 320-acre farm, FREE, or an irrigated farm for the mere per-capita cost of the irrigation system

320-ACRE FARMS FREE

The U. S. Government is now offering over three million acres of homestead lands in eastern Wyoming, along the Burlington Route, under the new Mondell homestead law permitting settlers to take 320 acres instead of the usual 160-acre homestead. These lands are ideal for dry farming, and hundreds of farmers have made a success of this method of farming in the locality where these lands are located.

IRRIGATED GOVERNMENT LANDS IN THE BIG HORN BASIN AND YELLOWSTONE VALLEY

where rich productive lands with perpetual water right may be purchased for about one-half the cost of land in the central States, and where the water can be turned on and off the land to suit the convenience of the farmer, and where you are not bothered with rain during harvest; where a single crop can be made to pay for the land; where 50 bu. of wheat and 75 bu. of oats commonly grow to the acre.

Don't Wait Longer, But Get a Home To-day

These lands are being rapidly taken up, and ere long all of the Government lands will be gone. Thereafter land will be possible of acquirement only at prices phenomenally high compared to those of to-day.

D. Clem Deaver,
93 Q Building, Omaha, Neb.

Send me folders and information about
____ Irrigated lands.

____ Mondell 320-acre homesteads:

(Put a check mark in front of one or both.)

Name _____

Address _____

Cut out this coupon and mail it to-day.

OUR PERSONALLY CONDUCTED EXCURSIONS on the first and third Tuesday of each month and cheap homeseekers' tickets on those dates, allowing stop-overs in both directions, will give you an opportunity to examine the irrigated lands and the Mondell lands on one trip.

OUR NEW FOLDERS WITH MAPS, showing the location of all of the above-mentioned lands and explaining in detail the crops raised, the natural resources of each locality, and the method of procedure to acquire title, will be sent to you, free for the asking. **Write or fill out and mail attached coupon to-day.**